Mining Ideas 3

U.S. EPA
Great Lakes National Program Office
March 16, 2007

Between 2002 and 2007, 82 projects to protect, restore, inventory, assess, classify, monitor, and study ecosystems of the Great Lakes basin were completed. More than $4,851,776 was awarded and $11,866,293 leveraged for these projects. The U.S. Environmental Protection Agency's Great Lakes National Program Office (GLNPO) Ecological Protection and Restoration Program awarded assistance agreements for the projects, which were supported by federal, state, local, tribal and non-governmental and academic partners. *Mining Ideas 3* summarizes each of the 82 final project reports.

In 1996, GLNPO published *Mining Ideas*, a report detailing the interim progress of 87 ecological protection and restoration projects. By funding projects throughout the basin, GLNPO intended to increase the quality and extent of native ecosystems of the Great Lakes basin, foster a greater understanding of ecosystem processes and functions, increase participation by partners in on-the-ground protection and restoration activities, and increase public awareness of the special and valuable nature of Great Lakes systems, communities and species. The report concluded that the projects were beginning to yield the following results:

- Our knowledge about what ecological communities and species exist and the processes and functions being impacted by project activities were increasing.
- Project activities were positively impacting vast acreages.
- New protection and restoration tools were being invented and knowledge was being accumulated and passed on to others.
- Great Lakes ecosystem gaps in scientific knowledge were being tabulated.
- An understanding of the importance of partnerships to implement project activities was increasing.
- GLNPO grant and leveraged dollars were beginning to have an impact, directly and indirectly, on local economies.
- Communities formerly unaware of the natural resources surrounding them were actively participating in protection and restoration projects.

Mining Ideas established the benefits to continuing to fund good ecological protection and restoration projects. Benefits cited included: funding positive actions delays or stops ecosystem damage while building the ecological knowledge necessary to encourage good land management decisions; opens doors for leaders to protect and restore local natural resources; gives creative ideas a chance, while supporting well-established techniques in appropriate places; provides seed money to begin projects that communities consider important; and helps build networks for sharing ideas.

The *Mining Ideas 2* report was a follow-up to the ideas and expectations expressed in the 1996 report. It was prompted by the desire to document changes in the Great Lakes environment resulting from GLNPO funding and to better target opportunities for future funding. Complicating the funding challenge was the reminder that many good proposals that were submitted to GLNPO went unfunded each year. Several of the projects were targeted by GLNPO

and other state and federal partners for funding as part of a program to improve the health of the Great Lakes ecosystem.

As a result of the findings of *Mining Ideas* and *Mining Ideas 2*, GLNPO helped to initiate and contributes to the Great Lakes Watershed Restoration Grant Program. The Great Lakes Watershed Restoration Grant Program is a partnership of five federal agencies and the National Fish and Wildlife Foundation (NFWF) to award grants for ecological restoration projects addressing needs identified by the Great Lakes Regional Collaboration. With more than $827,000 from five federal agencies (including $510,000 from GLNPO) and approximately $1.3 million in match dollars from grantees, and working through NFWF with whom the agencies have Cooperative Agreements or Memorandums of Understanding, the Great Lakes Watershed Restoration Grant Program awarded two-year grants for 14 habitat protection and restoration projects in 2006. In 2007 the Program awarded $2.2 million from the federal partners and match from grantees for 22 grants. States and tribes assisted the federal partners in reviewing grant proposals. The collaborative grant program was initiated in FY 2006 in response to the President's Executive Order on the Great Lakes and needs outlined in the Great Lakes Regional Collaboration Habitat/Species subgroup.

See tables 1 and 2 for award dollars and leveraged dollars by State and Lake basin. See Appendix A for a narrative summary, the project results, and the project statistics for each of the 82 projects.

Table 1. Number of Projects, Award Dollars and Leveraged Dollars by State.
These statistics correspond to the grant recipient's state or province. States outside of the Great Lakes basin are indicated as "Other."

State	Number of Projects	Award Dollars	Leveraged Dollars
Illinois	9	419,578	7,260,960
Indiana	6	203,407	35,117
Michigan	21	2,216,502	3,415,491
Minnesota	1	58,437	9,800
New York	15	942,634	634,076
Ohio	5	144,809	68,424
Ontario	1	97,318	48,399
Pennsylvania	1	50,000	2,750
Wisconsin	16	443,441	152,212
Two or more	1	5,000	1,250
Other	6	270,650	237,813
Totals	**82**	**4,851,776**	**11,866,293**

Table 2. Number of Projects, Award Dollars and Leveraged Dollars by Lake Basin.
These statistics correspond to the lake basin where the projects took place.

Lake Basin	Number of Projects	Award Dollars	Leveraged Dollars
Superior	10	$329,869	$232,274
Huron	3	$167,746	$364,839
Michigan	12	$389,393	$7,354,061
Erie	16	$707,875	$358,501
Ontario	11	$506,711	$311,106
All	25	$2,017,381	$2,899,305
Two or more	5	$732,801	$346,206
Totals	**82**	**$4,851,776**	**$11,866,293**

Appendix A – Project Narratives, Results, and Statistics

The following 82 projects were awarded between FY1997 and FY2005 and were completed between 2002 and 2007. They are listed in alphabetical order by project title and numbered consecutively. Each entry contains the following information:

- Title of project, grant number, and name and address of recipient organization
- A brief project narrative that recounts major project goals, objectives, and milestones
- Environmental science and management project results. These are noted in six categories–ecological protection, ecological restoration, planning/coordination/collaboration, inventory/assessment/classification, scientific study, and monitoring/ indicators. Ecological protection is defined as actions taken to prevent stress to ecosystems. Ecological restoration is the process of assisting the recovery of an ecosystem that has been degraded, damaged, or destroyed.
- Public stewardship project results for actions taken to inform the public of or include them in ecological protection and restoration projects. These project results are noted in four categories: outreach/information exchange, education, partnership building, and protection and restoration volunteers.
- Economic impacts of the project
- Project Statistics, including award amount; project timetable and location; acres impacted and/or involved; Great Lakes system; culturally , economically, and/or biologically significant plants, animals, and habitats; stressors impairing the system; and partners.

A. Grant Servicing Intermediary

(FY2004-2008 - GL96518001)
National Fish and Wildlife Foundation
1 Federal Dr.
Fort Snelling, MN 55111

Cluster Grant Projects:

Sub-awards administered by the National Fish and Wildlife Foundation (NFWF) to state and local governments, tribes, academic institutions, and non-governmental organizations working in the Great Lakes, support activities that survey, study and investigate practices and tools for protecting and restoring ecosystems. In addition, NFWF is administering the Great Lakes Watershed Restoration Grant Program, a program whereby five federal agencies are cooperating to fund ecological protection and restoration projects. Currently, more than 70 projects are being administered by NFWF, 16 projects have been completed to-date, and are included in this report. The NFWF project timetable is October 1, 2003 to September 30, 2008.

These projects are:

4 - Brownfields-Greenfields Policy Roundtable
5 - Building Fish Friendly Road Crossings Training Program
21- Environmental Risk in Great Lakes Habitats Conference
30 - Great Lakes Communications Toolbox
32 - Great Lakes Grassroots Symposium
33 - Great Lakes Student Summit (2004)
45 - Lake Michigan Shorelands Alliance
55 - Ohio Coastal Atlas
57 - Plant Conservation Research Symposium
63 - Restoring Lake Superior's Lost Coastal Forest
72 - State of the Straits Conference
73 - STREAMS Educational Outreach Forum
77 - Weeds Watch Out! (W2O!): Stop Invasive Aquatic Plants
79 - Wetlands C.P.R. Toolbox Printing
80 - Wild Ones Natural Landscapers 25 Year History
81 - Wisconsin's Wetlands: Biodiversity & Threats

#1 - Assessing the Validity of Using Rare Species as Indicators

(FY2001 - GL97567201-2)
Michigan State University
301 Administration Building
East Lansing, Michigan 48824
517-373-7565

Project Narrative:

As identified by the State of the Lakes Ecosystem Conference (SOLEC) in 2000, the ecological condition of the Great Lakes is viewed within the context of its underlying physical, chemical, and biological processes. Since its inception in 1994, SOLEC has placed emphasis on the development of easily understood indicators that would assist in monitoring the health of the Great Lakes environment. Threatened species have long been identified as being integral to the SOLEC groupings (or *Indicator Core Groups*), which are compromised of the following areas: open and nearshore waters, coastal wetlands, nearshore terrestrial, human health, land use, and unbound. The threatened (i.e. rare) species indicator, which was ultimately determined to be most applicable to the "unbounded" core group, was identified as having the most relevancies (of all unbound indicators) across groupings in several organized categories. As Indicator #8161, threatened species were summarized as applying in the following way: "This indicator will assess the number, extent, and viability of threatened species, which are key components of biodiversity in the Great Lakes basin, and it will be used to infer the integrity of ecological processes and systems (e.g. sand accretion, hydrologic regime) with Great Lakes habitat."

In this project, the Michigan Natural Features Inventory (MNFI) program investigated devising a methodology for identifying and evaluating rare plant and animal species as potential indicators of Great Lakes environmental health. The key element of this effort was applying a statewide natural features database, largely built upon tracking occurrences of more than 600 rare plant and animal taxa, in conjunction with a new, GIS based data platform. The first part of this study involved defining, developing, and applying spatially explicit criteria for identification and delineation of "high quality sites." The second part of the study consisted of determining all rare species occurrences falling within the spatial boundaries of high quality sites, then determining how to best delineate potential indicators among this species pool. In addition, a randomization test was devised, using resampling technique, to identify a second set of species shown to be statistically significant with respect to their statewide association with high quality areas as spatially defined. This study was concluded with a brief evaluation of statistically significant indicators and a demonstration of their potential breadth of application through preparation of a statewide distribution map.

Project Results:

Environmental Sciences and Management
-*Monitoring, Indicators*
Correlated the occurrence of rare species with the occurrence of high quality ecosystems to determine if rare species are reliable indicators of ecosystem quality and health
Economic Impact
-Direct
$4,411 – Leveraged
$49,687 – Personnel

Project Statistics:

Award Amount: $83,809
Project Timetable: October 1, 2001 – September 30, 2003
Project Location: Michigan
Great Lakes System: All systems
Culturally, Economically, and/or Biologically significant plants, animals, and habitats: rare plants and animal taxa
Stressors Impairing the System:
Partners: Michigan Department of Natural Resources, Michigan Natural Features Inventory

#2 - Biodiversity Around the Great Lakes
(FY2001 – GL98581801-2)
Purdue University
Hovde Hall, 3rd Floor
West Lafayette, Indiana 47907
765-494-1222

Project Narrative:
This project aided in the development of a computer software program designed to inform and educate students and the general public on issues such as the importance of biodiversity in the Great Lakes ecosystems, as well as threats to critical species, and biotic communities. It contains modules that teach about aquatic and terrestrial plant and animal diversity in and around the Great Lakes. This program can help users understand their personal role and the roles of private and governmental institutions in protecting biodiversity losses resulting from water, air, and land pollution, habitat destruction, and other damaging practices. Finally, this program describes several ways in which biodiversity within the Great Lakes can be restored.

Project Results:
Public Stewardship
-*Outreach, Information Exchange*
Computer software program designed to inform and educate students and the general public on issues such as the importance of biodiversity in the Great Lakes ecosystems, as well as threats to critical species, and biotic communities
Economic Impact
-Direct
$2,632 – Leveraged

Project Statistics:
Award Amount: $50,000
Project Timetable: May 1, 1998 – April 30, 2002
Great Lakes System: All systems
Culturally, Economically, and/or Biologically significant plants, animals, and habitats: Biodiversity throughout the Great Lakes ecosystems

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#3 - Biodiversity Blitz 2002
(FY2002 – GL97591101)
The City of Chicago Department of the Environment
30 N. LaSalle St., Suite 2500
Chicago, IL 60602

Project Narrative:
Stretching from Southeast Chicago to Northwestern Indiana, the Lake Calumet region is a study in contrasts – outstanding natural environments intermingled within a 15,000-acre brownfield. Despite a 130-year history of heavy industrial use, the region contains critical remnants of highly endangered ecosystems, including prairie wetlands, oak savannas, and oak woodlands along with a number of endangered and threatened species.

A Biodiversity Blitz ("BioBlitz") was held in the Calumet region on August 23 and 24, 2002 at the Wolf Lake/Powderhorn Marsh/Eggers Woods site. A BioBlitz is a 24-hour inventory of species, with the goal being to identify as many species as possible during this period. This effort would then be used to generate a scientifically valid, user-friendly database on the species found at a site for use in management decisions and possible new research directions, while also launching a variety of community-based conservation initiatives. This effort involved more that 130 scientists which were able to identify 2,257 species from 31 taxa groups. The Field Museum us compiling the data list and it will soon be available on their website for download and access.

This U.S. EPA funding was used to promote the event to the general public – community members, local schoolchildren and other interested groups. Full-color fliers were created to announce the event and were distributed via mail and hand distribution to thousands of people. In addition, full-color banners were created to orient people on the day of the event. Data sheets for the scientists were also created using this funding so that while in the field,

each scientist could collect data in a consistent manner. These sheets also allowed quick processing by the team entering information into the database. Finally, poster boards with each day's schedule of educational activities were created.

Project Results:

Environmental Sciences and Management
-Inventory, Assessment, Classification
24-hour Biodiversity blitz which identified 2,257 species
Public Stewardship
-Education
Environmental education activities also were present at each day of the event
Economic Impact
-Direct
$300 – Leveraged
$5,000 – Contractual

Project Statistics:

Award Amount: $5,995
Project Timetable: May 1, 2002 – April 30, 2003
Project Location: Lake Calumet region, Southeast Chicago to Northwestern Indiana
Great Lakes System: All systems
Culturally, Economically, and/or Biologically significant plants, animals, and habitats: prairie wetlands, oak savannas, and oak woodlands along with a number of endangered and threatened species
Stressors Impairing the System: Development
Partners: The Field Museum, Illinois Department of Natural Resources, UrbanWatch

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#4 - Brownfields-Greenfields Policy Roundtable (See the "Grant Servicing Intermediary" description of the cluster grant to the National Fish and Wildlife Foundation for more information.)
(FY 2003 - GL96518001 [GL2003-101])
Great Lakes Commission
2805 S. Industrial Hwy., Suite #100
Ann Arbor, MI 48104

Project Narrative:

This project funded a policy roundtable entitled, "Measuring Change Toward Balanced Growth," which served as a forum for Lake Erie stakeholders to review and provide interactive feedback regarding a proposed suite of indicators to measure balanced growth in Ohio. The indicator suite was aimed at directing new growth to priority development areas and protecting priority conservation areas. All together, the project involved the formation of a steering committee, the identification of a target audience, the organization and conduction of the policy roundtable itself, and the production and distribution of roundtable proceedings. This roundtable was second in a series of state-specific roundtables designed to promote sustainable land use in the Great Lakes basin through the advancement of brownfields redevelopment, greenfields protection, and linkages between the two.

Project Results:

Environmental Science and Management
- *Planning/coordination/collaboration*
Development of the roundtable involved collaboration with various agencies and organizations, and the roundtable itself facilitated brownfields and greenfields-related planning.
- *Monitoring/indicators*
This project involved the review of a proposed set of both environmental and programmatic indicators.
Public Stewardship
- *Outreach/information exchange and education*
The roundtable process allowed for information exchange among local stakeholders. Additionally, project information was publicized and published online.
- *Partnership building*

The roundtable served as a venue for partnership building between stakeholders.
Ecosystem Theme
- *Human-dominated urban landscapes*
Brownfields and greenfields are often in industrial and urban areas.
Economic Impact
- *Direct*
$7,275 – Leveraged
$9,500 – Personnel
(See the "Grant Servicing Intermediary" description of the cluster grant to the National Fish and Wildlife Foundation for more information.)
- *Indirect*
The prioritizing of strategic actions could lead to more cost-effective brownfield redevelopment and greenfield protection activities.

Project Statistics:
Award Amount: $20,000
Project Timetable: October 1, 2003 – September 30, 2005
Project Location: Cleveland, Ohio
Great Lakes System: Terrestrial
Culturally, economically, and/or biologically significant plants, animals, and habitats: Brownfields and greenfields are often economically significant locations.
Stressors Impairing System: Contamination; Development
Partners: Ohio Lake Erie Commission; Cleveland State University's Maxine Goodman Levin College of Urban Affairs, the Levin College Forum Program, and the Center for Environmental Science, Technology and Policy; the Michigan State University Extension; Case Western Reserve University; Cuyahoga County Planning Commission; EcoCity Cleveland; Michigan State University; Ohio Dept. of Development; Ohio Dept. of Natural Resources; Ohio Sea Grant; Ohio State University; Ohio State University Extension; and the Toledo Metropolitan Area Council of Governments.

#5 - Building Fish Friendly Road Crossings Training Program (See the "Grant Servicing Intermediary" description of the cluster grant to the National Fish and Wildlife Foundation for more information.)
(FY2004 - GL96518001 [GL2004-32])
University of Wisconsin Extension Service
Northern Great Lakes Visitor Center
29270 County Hwy G
Ashland, WI 54806

Project Narrative:
The "How to Build Fish-Friendly Stream Crossings Workshop" was held August 25th and 26th, 2004 at the Northern Great Lakes Visitor Center in Ashland, Wisconsin. Attended by more than 30 people, the training provided an overview of how to evaluate the impacts of stream structures on fish and their habitats. Topics covered included: the basic principles of engineering, fish biology, stream behavior, erosion and sediment control, and construction practices needed to design cost-effective fish-friendly water crossings. The expected outcome of the training is the elimination of habitat damage at crossings constructed in the future.

Project Results:
Public Stewardship
- *Outreach/information exchange*
Over 30 people trained.
Ecosystem Theme
- *Rivers and streams*
The topic of the training related to stream culverts.
Economic Impact
- *Direct*

(See the "Grant Servicing Intermediary" description of the cluster grant to the National Fish and Wildlife Foundation for more information.)

Project Statistics:
Award Amount: $5,000
Project Timetable: October 1, 2004 – September 14, 2005
Project Location: Ashland, Wisconsin
Great Lakes System: Streams, tributaries, connecting channels
Culturally, economically, and/or biologically significant plants, animals, and habitats: Aquatic species
Stressors Impairing System: Erosion, poorly-designed road crossings

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#6 - Cazenovia Creek Habitat Restoration and Stewardship Project
(FY1999 - GL97514101-0)
Erie County Department of Environment and Planning
95 Franklin Street, RM 1077
Buffalo, New York 14202
716-858-6231

Project Narrative:
Cazenovia Creek is listed as one the 43 Areas of Concern (AOC) in the Great Lakes region, as a result of the river's poor water quality and contamination levels. In order to meet the goals of habitat restoration and community stewardship within this area, three key elements were drafted: establish a project partnership, curriculum development, and program implementation. Each of these project tasks resulted in many accomplishments and leveraged other opportunities to restore habitat and participate in community outreach activities. Key accomplishments for this project included: nearly 1,000 linear feet of streambank stabilization work, direct participation of over 400 students during the 2 ½ year project, publicity and raised awareness of Cazenovia Creek and the Buffalo River Watershed issues, over 2,000 students indirectly participating through complementary programs like the Great Lakes Student Summit, Earth Day Expo, and Earth Day T-Shirt design contest, two teacher training events, and the evolution into ongoing program (Connecting To Learn) as a new vehicle to continue the goals and objectives of the Cazenovia Creek project.

Project Results:
Environmental Sciences and Management
-Ecological Protection
Nearly 1,000 linear feet of streambank stabilization work
Public Stewardship
-Outreach, Information Exchange
Publicity events which raised awareness of Cazenovia Creek and the Buffalo River Watershed issues
-Education
Over 400 students directly participated in projects associated with the restoration and stewardship of Cazenovia Creek, while over 2,000 indirectly participated
Economic Impact
-Direct
$49,610 – Leveraged
$41,500 – Personnel
$48,500 – Contractual

Project Statistics:
Award Amount: $69,750
Area Impacted: Nearly 1,000 linear feet of streambank
Project Timetable: October 1, 1999 – September 30, 2002
Project Location: Cazenovia Creek and the Buffalo River Watershed
Great Lakes System: Streams, tributaries, connecting channels
Stressors Impairing the System: Contamination; Erosion

Partners: Erie County Soil and Water Conservation District, New York Sea Grant, Main Street Elementary School, Potters Road Elementary School, Winchester Elementary School, Holland Central High School, The Gow School, Amherst School District

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#7 - Coastal Wetland Habitat Restoration and Exploration

(FY2004 – DW-14-94806701-1)
U.S. Geological Survey
Great Lakes Science Center
1451 Green Rd.
Ann Arbor, Michigan 48105
734-214-9308; Fax 734-214-7230
kkowalski@usgu.gov

Project Narrative:

Over 96% of the original wetland habitats along the U.S. shoreline of western Lake Erie have been lost since the 1860s. Most of the remaining coastal wetlands have been isolated by earthen dikes and no longer provide many of the functions of coastal wetlands (e.g., fish habitat). Unfortunately, most of the remaining undiked wetlands are severally degraded. They remain hydrologically connected to the lake, but the wetlands vegetation that provide vital dish habitat is sufficiently degraded to impact negatively affect the approximately 43 Great Lakes fish species that use the wetlands habitat.

This project initiated research on the restoration of the drowned-river mouth wetlands at Crane Creek, a small stream flowing into western Lake Erie. Bordered by diked wetlands and managed by Ottawa National Wildlife Refuge, the Crane Creek wetlands are severally degraded. This project involved the exploration of short-term and long-term rehabilitation of Great Lakes coastal wetlands habitats with a specific focus on the complex of drowned-river mouth and diked wetlands at Crane Creek.

Specifically, this project initiated the ecological rehabilitation of the Crane Creek wetland complex with specific focus on two components: 1) testing techniques to reestablish wetland vegetation and 2) hydrologically reconnecting the creek, diked wetlands, and nearshore zone. Air photos were analyzed to characterize historical changes in the marsh. As a test, a portable cofferdam was used to isolate a portion of the marsh and mimic the conditions of a low-water year. Two years of quantitative sampling of plant, fish, and mussel assemblages were completed throughout Crane Creek and in adjacent diked wetlands. Water level, elevation, and water quality data were used to characterize physical conditions at the site. Biotic and abiotic data collected in diked wetland units were compared to the data collected in Crane Creek and used to assess the potential for restoration through hydrologic reconnection to Lake Erie. Short-term efforts like using a portable cofferdam to mimic a low-water year by hydrologically isolating portions of the marsh show great promise if the dams perform like they should (e.g., don't leak) and no unusual events occur (e.g., extreme floods). When the cofferdam is removed after multiple growing seasons, the reestablished vegetation could provide high quality habitat to fish and other biota as well as restore some of the natural functions of coastal marshes (e.g., sediment removal, wave attenuation, flood retention).

Results of this project show that the diked wetlands currently are quite different than adjacent coastal wetlands with respect to emergent vegetation (i.e., there is a lot more in the diked wetlands), fish assemblages (dominated by Centrarchids rather than Cyprinids found in Crane Creek), and hydrology (relatively stable water levels), but critical physical factors such as substrate elevation (determines water depth) and water quality are not that much different. Reconnecting diked wetlands, therefore, would benefit Crane Creek biota greatly without causing immediate damage to the diked wetlands unless Lake Erie water levels rise or fall significantly. It is likely, however, that the same negative influences that degraded habitats throughout Crane Creek would in time degrade the habitats in the reconnected pools. Once the reconnected pools no longer provide additional high quality habitat to the Crane Creek system, temporarily isolating the diked wetlands again and managing water levels to promote the reestablishment of high quality habitat could improve conditions inside the pools. When vegetation or other desirable conditions are reestablished in the diked wetlands, the structures could be reopened to return the habitat to Crane Creek. In essence, this cycle would do the same thing in diked wetlands as the portable cofferdam would do in Crane Creek. Degraded areas are isolated until conditions improve and then reintegrated with Crane Creek.

Project Results:

Environmental Sciences and Management
-Ecological Restoration

Reestablished low-level wetland plants during low, water level simulation
-*Scientific Study*
Study on the effects of isolating and reconnecting wetlands from the hydrology of Lake Erie

Project Statistics:

Award Amount: $99,460
Project Timetable: October 1, 2003 – September 30, 2005
Project Location: Crane Creek, Western Lake Erie
Great Lakes System: Coastal Wetlands
Culturally, Economically, and/or Biologically significant plants, animals, and habitats: Coastal Wetlands
Stressors Impairing the System: Development
Partners: U.S. Fish and Wildlife Service Ottawa National Wildlife Refuge, University of Michigan School of Natural Resources and Environment

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#8 - Coaster Brook Trout Habitat Evaluation in Grand Traverse Bay

(FY2002 – GL 97522001-0)
Grand Traverse Band of Ottawa and Chippewa
2605 N. West Bay Shore Rd.
Suttons Bay, MI 49682

Project Narrative:

In 1994, the Great Lakes Fishery Commission coordinated the development of a multi-agency "Joint Strategic Plan For Management of Great Lakes Fisheries." As part of this plan, Fish Community Objectives (FCOs) were defined for each of the Great Lakes. Consistent with each Lake's FCOs are the inclusion of goals to re-establish, protect and preserve native stocks of fish. Brook trout are among these native species. Coaster brook trout were once present in measurable numbers in Grand Traverse Bay as well as throughout the northern Great Lakes. However, declining populations had lead to stocking efforts by Michigan DNR by the 1960's. Inappropriate stocking site selection and/or over-fishing may have been significant factors leading to the minimal success of these programs. This project focused on the identification and quantification of potential coaster brook trout habitat in Grand Traverse Bay, an area in which brook trout had previously been identified in.

While the methods used to directly survey the near-shore waters of Grand Traverse Bay did not produce the desired results (i.e. no ground water seeps were found), it did advance the knowledge base of the near shore substrate; specifically its distribution and composition. In addition, data obtained as a result of this grant was used to focus two other grant requests to perform a comprehensive mapping and quantification of substrate types in the near-shore waters of Grand Traverse Bay. Substrate delineation resulting from these three grants (GLNPO, BIA, and GLFT) will not only be imperative for future brook trout stocking efforts, data collected will influence future lake trout stocking decisions in the Bay as part of "A Lake Trout Restoration Plan for Lake Michigan" currently being drafted by the Great Lakes Fishery Commission – Lake Michigan Technical Committee.

Project Result:

Environmental Sciences and Management
-*Inventory, Assessment, Classification*
Shoreline and near-shore sediment surveyed throughout Grand Traverse Bay
Economic Impact
-Direct
$85,093 – Leveraged
$53, 338 - Personal
Income to small, local dive business that provided equipment and supplies.
Small economic benefits were realized by the American Fisheries Society (AFS) and the local communities where the AFS meeting and Western Great Lakes Research Conference were held.
-Indirect
Increase in local commerce associated with an expanded fishery.

Project Statistics

Award Amount: $20,650
Project Timeline: May 1, 2003 – April 30, 2005

Project Location: various locations within Grand Traverse Bay, Lake Michigan
Great Lakes System: Open/nearshore waters; Streams, Tributaries, Connecting Channels
Culturally, Economically, and/or Biologically significant plant, animal, or habitat: Coaster Brook Trout
Stressors Impairing the System: Over-fishing
Partners: The Grand Traverse Bay Watershed Initiative, Land Information Access Association, Inter-Tribal Council of Michigan

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#9 - Coaster Brook Trout Management and Rehabilitation Conference
(FY2002 – GL97586201-0)
Trout Unlimited
211 South Peterson Street, Suite 270
Madison, Wisconsin 53703
608-250-3534

Project Narrative:

This project organized and hosted a basinwide coaster brook trout rehabilitation conference which gathered all researchers, managers, and involved organizations to share the results of research and management projects. The conference featured presentations and updates of all work that had occurred to date, a discussion of the lessons learned, and planning and strategy sessions to coordinate pursing future initiatives. The main objectives were to share management results, refine a lakewide strategy, promote collaboration, provide a forum, and publish proceedings to distribute widely: all of which were accomplished.

Project Results:
Environmental Sciences and Management
Public Stewardship
-*Planning, Coordination, Collaboration, Conferences*
Basinwide coaster brook trout rehabilitation conference was held
Economic Impact
-Direct
$15,500 – Leveraged
$16,000 – Personnel

Project Statistics:
Award Amount: $20,000
Project Timetable: May 1, 2002 – April 30, 2004
Project Location: Wisconsin
Great Lakes System: Open/nearshore waters
Culturally, Economically, and/or Biologically significant plants, animals, and habitats: Coaster Brook Trout

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#10 - Collaborative Restoration and Education at Eastern Lake Ontario (a.k.a. Coordinated Dune Steward Program for the Beaches and Dunes of Eastern Lake Ontario)
(FY1999 - GL97514201-1)
The Nature Conservancy
339 East Avenue, Ste. 300
Rochester, NY 14604

Project Narrative:

The Ontario Dune Coalition implemented a coordinated dune steward program for the beaches and dunes in eastern Lake Ontario. This included the restoration and re-vegetatation of damaged dunes using locally-grown native beach grass, the protection of dunes with sensitive public access, and engagement of the local community through a dune and wetland education program.

Project Results:

Environmental Science and Management
- *Ecological protection and restoration*
This project resulted in the restoration and protection of beaches and dunes along Lake Ontario.
- *Planning/coordination/collaboration*
This program included a high level of collaboration amongst several different groups.
- I*nventory*
Dune stewards also completed monitoring/inventories of managed areas.
Public Stewardship
- *Outreach/information exchange and education and*
Dune stewards educated the public about proper use of the dunes and maintained a weekly newspaper column.
- *Protection and restoration volunteers*
High school interns were involved in restoration activities.
-*Partnership building*
This project involved the partnership of numerous organizations.
Ecosystem Theme
- *Sand Beaches and Dunes*
The project area included a fragile dune barrier system.
Economic Impact
- *Direct*
Employment of four full-time, seasonal dune stewards and a steward chief to help implement the program.
$138,000 – Leveraged (Public)
$76,000 – Leveraged (Private)
$65,000 – Personnel
$78,000 – Contractual

Project Statistics:
Award Amount: $144,900
Area Impacted: 6.5 miles of public access beach and undeveloped beach/dune property along the eastern shore of Lake Ontario
Project Timetable: October 1, 1999 – March 31, 2002
Project Location: Eastern Lake Ontario
Great Lakes System: Coastal shore and Coastal wetlands
Culturally, economically, and/or biologically significant plants, animals, and habitats: Beaches and dunes that were part of state wildlife management areas, a state park, county park, Unique Area, and a Nature Conservancy Preserve.
Stressors Impairing System: Recreation
Partners: The Nature Conservancy, New York State Department of Environmental Conservation, Oswego County, NY Sea Grant, NY State Office of Parks, Recreation & Historic Preservation, and the Friends of Sandy Pond Beach.

#11 - Conservation Planning in the Huron River Watershed
(FY1999 - GL97502701-0)
The Huron River Watershed Council
1100 N. Main Street, Suite 210
Ann Arbor, MI 48104
734-769-5123; Fax 734-998-0163
kolsson@hrwc.org

Project Narrative:
The Huron River Watershed, which covers over 580,000 acres, contains the cleanest urban river in the state of Michigan (Huron River), a mixture of topography and soil types, and is home to several species of animals and plants listed as threatened, endangered, or under special concerns. The high quality of the lands and waters are largely due to the open space that exists within this watershed. However, with the continued migration of people away from urban centers into low-density rural areas, these lands are being threaten, or even lost.

This project is aimed at preserving open spaces and wildlife habitat by creating an inventory and prioritization of critical habitats, open spaces that maintain the hydrological functions of the Huron River Watershed, and important natural features. This was accomplished by the creation of a bioreserve planning map of the Watershed; a GIS dataset of the landscape, ecology, hydrology, and geology of the watershed; a GAP analysis of past and current landscapes which prioritizes ecosystem types for protection and restoration; and an automated GIS model that prioritizes natural areas for their ecological and hydrological importance.

Project Results:

Environmental Sciences and Management

-Inventory, Assessment, Classification

Comprehensive data set of hydrological, ecological, geological, and land use/land cover date for the Watershed.
A sensitive areas map that can be presented at any scale depending on the issue.
A GAP analysis that can be used as a guide to the kinds of plant communities to target for protection efforts.
An automated GIS model that ranks existing sites for their hydrological and ecological value.
Final bioreserve map for Washtenaw and Oakland counties.

Public Stewardship

Outreach, Information Exchange

Article describing the Huron Swamp for the Watershed Council's Quarterly newsletter.
A presentation describing the natural communities of the Watershed, the importance of natural areas, and the bioreserve mapping project.
A map/poster for the general public that shows creeksheds, waterways, major roads, municipalities, the Watershed's place within Michigan and the Great Lakes, etc.
Sensitive areas maps and other information to several groups to aid in their protection and restoration of natural areas.
Maps and narratives to be included in a Stewardship Network Handbook for the Huron Watershed.
Article in the HRWC newsletter, "The Huron River Report" explaining the GAP analysis.

Economic Impact

-Direct
$242,642 – Leveraged
$143,520 – Personnel

Project Statistics:

Award Amount: $25,000
Project Timetable: September 15, 1999 – August 31, 2001
Project Location: The Huron River Watershed, located in Southeast Michigan
Great Lakes System: All Systems
Culturally, Economically, and/or Biologically significant plants, animals, and habitats: Several species of animals and plants, as well as plant communities, which have been listed as threatened, endangered, or under special concern by the Michigan Natural Features Inventory including; 71 plant species, 19 plant communities, 9 fish species, 7 reptiles, 5 types of birds, 4 mussels, 3 species of mammals, and 1 amphibian
Stressors Impairing the System: Extensive urban sprawl
Partners: The University of Michigan, the City of Ann Arbor, the Land Information Assess Association, Washtenaw County, Oakland County Planning and Economics Development Department, the Michigan Natural Features Inventory, and the University of Michigan's School of Natural Resources and Environment

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#12 - Contributing Factors in Habitat Selection by Lake Sturgeon (*Acipenser fulvescens)*

(FY1999 - GL97517201-2)
State University of New York
College of Environmental Science and Forestry
Syracuse, New York 13210

Project Narrative:

This project was set up to study the diet of different size classes of lake sturgeon to investigate the shifts in prey preferences related to body size and to determine if exotic Dreissenid mussels comprise a significant

component of the sturgeon diet. This study also examined the apparent differences in juveniles and adult habitat relative to preferred prey items. Several important conclusions made during this study include: there is a change in diet in relationship to habitat preference based upon prey availability, i.e. the abundance and distribution of lake sturgeon of various size classes appears to reflect that of their preferred prey. Also, adult sturgeons appear to have a greater range of dietary preference with a greater predation on molluscs with an increase in size.

The information obtained from this study can provide valuable information for restoration, rehabilitation, and management efforts. Size-based habitat preferences can indicate which habitats are needed in order to support, or sustain, a specific age class of lake sturgeon, i.e. the protection of the preferred habitat to juvenile lake sturgeon would decrease the vulnerability at that delicate life history stage.

Project Results:

Environmental Sciences and Management
-*Scientific Study*
Scientific report on factors that contribute to habitat selection by lake sturgeon, which could be used for further conservation and/or restoration.
Economic Impact
-Direct
$3,105 – Leveraged
$9,000 – Personnel

Project Statistics:

Award Amount: $16,367
Project Timetable: November 1, 1999 – October 31, 2000
Project Location: St. Lawrence River
Great Lakes System: Streams, tributaries, connecting channel
Culturally, Economically, and/or Biologically significant plants, animals, and habitats: lake sturgeon
Stressors Impairing the System: Habitat loss/fragmentation and increased boating traffic

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#13 - Critical Habitats of Adult Lake Sturgeon in the Detroit River

(FY2000– GL97505001-2)
Central Michigan University
Brooks 184 – Biology Department
Mt. Pleasant, Michigan 48859
517-774-3377

Project Narrative:

Overfishing and habitat destruction in the early 1900s devastated lake sturgeon populations in the Great Lakes. Although a comprehensive restoration strategy for this species was recently drafted by the Michigan Department of Natural Resources, a lack of current data on Great Lakes sturgeon stocks has hindered rehabilitation efforts. Historically, the Detroit River supported one of the largest lake sturgeon populations in the Great Lakes; however, little is known about the current population or its habitat use.

As part of a larger study, baited setlines were used to capture lake sturgeon in the Detroit River in the spring and summer of 2000 and 2001. In each year of the study ultrasonic transmitters were surgically implanted in 10 adult fish to track their movements, evaluate habitat use, and identify possible spawning sites. Using telemetry and egg mats to verify spawning activity, the location of one spawning site in the Detroit River was identified. Spawning was verified by recovering sturgeon eggs deposited on egg collection mats anchored at the site. Telemetry data suggested that several other possible spawning sites also may exist, however spawning at these sites were not verified during this study.

Project Results:

Environmental Sciences and Management
-*Scientific Study*
Study of lake sturgeon in the Detroit River which identified a previously unknown spawning site
Economic Impact

-Direct
$2,080 – Leveraged
$1,580 – Personnel
$12,880 – Contractual

Project Statistics:
Award Amount: $39,500
Project Timetable: January 1, 2000 – December 31, 2001
Project Location: Detroit River
Great Lakes System: Streams, tributaries, connecting channels
Culturally, Economically, and/or Biologically significant plants, animals, and habitats: Lake Sturgeon
Stressors Impairing the System: Overfishing, habitat destruction
Partners: Michigan Department of Natural Resources, U.S. Fish and Wildlife Service, Bay Mill Tribe of Chippewa Indians, U.S. Geological Survey, Ohio Division of Wildlife, DTE Energy Co.

#14 - Cuyahoga River RAP Stream Restoration Education Program
(FY1999 - GL97515001-0)
Cuyahoga River Community Planning Organization
1299 Superior Avenue
Cleveland, Ohio 44144-3204
216-241-2414

Project Narrative:
This project has provided a significant opportunity for education of community and watershed organizations personnel and citizens on the issues and methods of stream restoration in the Cuyahoga River watershed. Through this project four signs were completed and erected at the following restoration sites: Seven Hills; Furnace Run; Mill Creek in Highland Hills; and the Chevy Branch of Big Creek in Cleveland. A 12 page guide for homeowners, "Life at the Water's Edge: Living in Harmony with Your Backyard Stream" was completed in December 2000 and distributed at numerous events. Four meetings/workshops were held in 2001 throughout the Big Creek watershed, while additional site tours and technical assistance for stream restoration were given by a noted stream restoration expert.

Project Results:
Public Stewardship
-Outreach, Information Exchange
Four signs were completed and erected at restoration sites
A 12 page guide for homeowners, "Life at the Water's Edge: Living in Harmony with Your Backyard Stream" was completed
Four meetings/workshops were held in 2001 throughout the Big Creek watershed
Site tours were given to local leaders, key volunteers, and agency representatives
Economic Impact
-Direct
$17,420 – Leveraged
$3,500– Personnel
$3,200 – Contractual

Project Statistics:
Award Amount: $25,000
Project Timetable: September 1, 1999 – August 31, 2001
Project Location: Big Creek watershed: Cleveland area, Ohio
Great Lakes System: Streams, tributaries, connecting channels
Culturally, Economically, and/or Biologically significant plants, animals, and habitats: Streams
Stressors Impairing the System: Development, degradation of stream ecosystem
Partners: Biohabitats, Inc., Cleveland Metroparks, Cleveland Zoo

#15 - Detroit River Conservation & International Wildlife Refuge
(FY2002 - GL97581601-1)
Friends of the Detroit River
3020 Oakwood Boulevard
Melvindale, Michigan 48122
313-388-8892
river@detroitriver.org

Project Narrative:

With this project, the Friends of the Detroit River (FDR) formed a coalition of interest organizations and individual to support the recently designated Detroit River International Wildlife Refuge. Several coalition activities were held which continued to build a network of interested groups and organizations. FDR has also compiled a database which provides information on status of land ownership, and what other groups have been, or are currently working with landowners of properties within this area that are unprotected from development and high habitat quality for fish and wildlife production. Also, brochures were sent to these landowners, which discuss conservation easement and other land protection strategies. Another component of this grant was to develop a web-based information packet entitled, "Atlas of the Detroit River," which provides information such as: an introduction to why the Detroit River is important, what is water quality, what is a watershed, best storm water/urban watershed management practices for landowners, and other ways to help. Finally, the Detroit Riverkeeper program, a nonprofit citizen action group organized to protect, preserve and restore the ecological integrity of the Detroit River Watershed, was stated.

Project Results:

Public Stewardship
-Outreach, Information Exchange
The Greater Detroit Riverkeepers celebration held on October 25 and 26, 2003
Shiver on the River, February 1, 2003 and February 7, 2004
Friends of the Detroit River Task Force/Forum Meetings
Several workshops, river clean-ups, and presentations were conducted during the grant period
Conservation easement and other land protection strategies were researched and informational brochures were distributed to local land-owners of 37 properties which are currently unprotected from development and have a high quality habitat for fish and wildlife production
The development of a web-based information packet entitled, "Atlas of the Detroit River"
Establish the Detroit Riverkeeper program, a nonprofit citizen action group organized to protect, preserve and restore the ecological integrity of the Detroit River Watershed
-Partnership Building
An extensive coalition of interest organizations and individual that support the Detroit River International Wildlife Refuge was established
Economic Impact
-Direct
$55,000 – Leveraged
$50,000 – Personnel
$20,000 – Contractual

Project Statistics:

Award Amount: $50,000
Project Timetable: October 1, 2002 – September 30, 2004
Project Location: Detroit River
Great Lakes System: Streams, tributaries, connecting channels
Culturally, Economically, and/or Biologically significant plants, animals, and habitats: Detroit River and connecting channels
Stressors Impairing the System: Development
Partners: The Waterkeeper Alliance, The Detroit River Canadian Riverkeeper, American Heritage River, Canadian Auto Workers Union, Detroiters Working for Environmental Justice, Downriver Community Watershed Committee,

Environment Canada, Friends of Belle Isle, Grosse Ile Nature and Land Conservancy, Huron River Watershed Council, Michigan Environment Council, Michigan United Conservation Club, River Edge Credit Union, Riverfront East Alliance (REAL), Romulus (RECAP), Southwest Detroit Environmental Vision, Transportation Riders United (TRU), Wild Ones (Natural Landscapes Ltd.), Clinton River Watershed Council, Community Legal Resources, Detroit Audubon Society, Detroit Boat Club Rowing, Detroit Garden Center, Detroit Water & Sewerage Department, Downriver Linked Greenway Initiative, Downriver Recycling Center, Ducks Unlimited, Fox Creek – Creekside News & Views, Frank & Poet Association, Friends of Ecorse Creek, Friends of the Rouge, Great Lakes Commission, Greening of Detroit, Grosse Ile Nature Conservancy, Grosse Point Artists Association, Johnson Creek Protection Group, Jefferson East Business Association, Lake Michigan Federation, League of Women Voters, League of Conservation Voters, Michigan Humanitarian Council, Michigan Land Use Institute, Michigan River Alliance, Michigan State University – Master Gardeners, M.O.S.E.S., PIRGIM, Sierra Club, South Oakland Co Regional Authority, U.S. Coast Guard – Belle Isle Station, Wayne County Department of Environment Rouge Program Office, Wayne County Soil Conservation, Allen Park, Grosse Ile Township, City of Detroit, City of Southgate, City of Trenton, City of Gibraltar, City of Rockwood, Riverview, Ecorse, Wyandotte, St. Clair Channelkeeper, Greater Detroit American Heritage River Initiative, U.S. Fish and Wildlife Service, University of Michigan – Dearborn, Canadian Riverkeeper, U.S. Coast Guard Auxiliary, DTE Energy, Detroit Peregrines, General Motors, Michigan Department of Natural Resources, National Wildlife Federation, The Nature Conservancy, Organization of Bat Conservancy, Ship Building Display, Sturgeon Display, U.S. Geological Study, U.S. National Park Service, Walpole Island Display, Wild Turkey Federation, Women of St. James Episcopal Church, Flat Rock Historical Society, Detroit Pan-Hellenic Association, Trust for Public Lands, and the Wildlife Habitat Council

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#16 - Development of a Conservation Ethic in the Oak Openings

(FY1999 - GL97507001-1)

The Nature Conservancy
6375 Riverside Dr., Ste. 50
Dublin, OH 45056

Project Narrative:

This project involved the production and implementation of a marketing and outreach campaign that evaluated the awareness and knowledge level of local residents regarding the Oak Openings, informed and engaged them about the importance of this unique natural area, and gauged the campaign's effectiveness. Three "Oak Openings Natives Demonstration Gardens" were also created to serve as visual examples of the messages disseminated through the marketing campaign. Overall, this program produced significant results towards encouraging the Northwest Ohio community to value the Oak Openings Regions, including spurring the creation of the Oak Openings Region Preservation Alliance (OORPA) and the Oak Openings Region Green Ribbon Initiative.

Project Results:

Environmental Science and Management

- *Ecological restoration*

Three different sites were restored with plants native to the Oak Openings.

Public Stewardship

- *Outreach/information exchange and education*

This project included a substantial amount of outreach and a marketing campaign that educated the local public about the importance of the Oak Openings area. Numerous outreach materials were created and distributed. Activities like the Oak Openings Region Children's Art/Science Contest helped to get students involved and educated about the natural sciences.

- *Partnership building*

This project got the community involved, and ultimately prompted the creation of the Oak Openings Region Green Ribbon Initiative, a grass-roots conservation effort to preserve an additional 6,000 acres of habitat in the region. Numerous partners were involved in various programs/projects that were started as a result of this campaign.

Ecosystem Theme

- *Oak Savanna and Native Landscaping*

The project raised awareness about the importance of conserving the local oak savannas and included some native landscaping in otherwise developed areas.

Economic Impact

- Direct
Employment of an Oak Openings Project Office Communication and Outreach Coordinator
$40,724 – Leveraged
- Indirect
The heightened community awareness about this rare ecosystem will aid in future conservation efforts allowing it to remain a place for natural recreation. The project also promoted the use of native plants in local landscaping.

Project Statistics:
Award Amount: $99,960
Project Timetable: October 1, 1999 – September 30, 2002
Project Location: The Oak Openings region near Toledo, OH
Great Lakes System: Grasslands/savannas
Culturally, economically, and/or biologically significant plants, animals, and habitats: Oak Savanna
Stressors Impairing System: Development
Partners: Great Lakes Marketing; Libby, Perscyk & Kathman (LPK); Toledo Lucas Public Library; North Branch Nursery, Inc.; and other Nature Conservancy partners

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#17 - Development of the SOLEC Breeding Bird Indicator
(FY2002 - GL97523301-1)
Save the Dunes Conservation Fund
444 Barker Road
Michigan City, Indiana 46360
219-879-3504

Project Narrative:
This project helped to further develop the SOLEC Breeding Bird indicator by investigating established protocols for monitoring avian productivity and survivorship in habitats of interest; identified projects around the Great Lakes Basin that use these protocols; assessed the applicability and feasibility of these protocols/projects for contributing to the breeding bird indicator; and develop a framework for integrating the most appropriate protocols into the breeding bird indicator.

Project Results:
Environmental Sciences and Management
-Monitoring, Indicators
This project helped to further develop the SOLEC Breeding Bird indicator
Economic Impact
-Direct
$581 – Leveraged
$7,510 – Personnel

Project Statistics:
Award Amount: $10,459
Project Timetable: October 1, 2002 – September 30, 2004
Culturally, Economically, and/or Biologically significant plants, animals, and habitats: Breeding bird populations
Stressors Impairing the System: Development, invasive species, pollution
Partners: Indiana Department of Environmental Management, U.S. Geological Survey, the Nature Conservancy, Montana Cooperative Wildlife Refuge Unit, Institute for Bird Populations, Point Reyes Bird Observatory

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#17 - Ecology of Globally Rare Charophytes in Ephemeral Wetlands 2003-2006
(FY2002 - GL97557801-0)
Purdue University North Central
1401 S. U.S. 421

Westville, IN 46391-9528
219-785-5255; Fax 219-7855483
rscrib@purduenc.edu

Project Narrative:

This project was set up to study the ecology of globally rare Charophytes in ephemeral wetlands i.e. ponds at West Beach and Miller Woods (Lake and Porter County). Several important conclusions were made during this study including: the mean biomass and scud density among all the ponds show significant differences between many ponds; however, there were no clear patterns to explain these differences with adjacent ponds which often showed widely disparate biomasses and scud densities. There was also no significant correlation between biomass and scud density in pooled data across all sample points without considering pond as well as no significant relationship when considering average values for individual ponds. The Pearson Correlation for biomass versus scud density shown for all ponds, with the exception of one, indicated no relationship. The absences of an association between scud density and biomass and pond identity was attributed to the fact that both parameters variety enormously within ponds.

Project Results:

Environmental Sciences and Management
-Planning, coordination, information sharing, technology transfer
New sampler technology for sampling benthic macroinvertebrates and aquatic plants simultaneously
-Scientific Study
Scientific report on ecology of rare charophytes
Economic Impact
-Direct
$1,585 – Leveraged

Project Statistics:

Award Amount: $28,535
Project Timetable: September 15, 2002 – September 14, 2004
Project Location: West Beach and Miller Woods (Lake and Porter County)
Great Lakes System: Inland lakes and wetlands
Culturally, Economically, and/or Biologically significant plants, animals, and habitats: *Chara brittonii*
Stressors Impairing the System: Predation and other habitat characteristics
Partners: Purdue University

#19 - Eighteenmile Creek Environmental Design and Restoration Project
(FY2002 - GL99515501-1)
County of Niagara, New York
Department of Planning and Development
59 Park Avenue
Lockport, NY 14094

Project Narrative:

This project began restoration of the Eighteenmile Creek ecosystem, which was previously designated as an Area of Concern. The project concentrated on a region of the creek that had historically been one of the most popular recreational fishing streams on western Lake Ontario. Funding supported construction of habitat enhancement features, streambank stabilization, re-establishment and enhancement of a riparian buffer, re-vegetation of disturbed areas, and public outreach and environmental education. Best Management Practices were utilized throughout the project's implementation to minimize negative impacts to the area.

Project Results:

Environmental Science and Management
- *Ecological restoration and planning/coordination/collaboration*

This project included the restoration of a section of stream and streambank and involved the coordination of many various stakeholders.

Public Stewardship

- Outreach/information exchange, education

The project included numerous public outreach and education opportunities, such as an on-site educational kiosk, a brochure, project fact sheet, groundbreaking ceremony, project videotape, and the hosting of a two-day workshop on watershed restoration and environmental stewardship.

Ecosystem Theme

Rivers and Streams

This project resulted in ecological restoration of a section of stream.

Economic Impact

- Direct

$5,000 – Leveraged
$10,000 – Personnel
$38,000 – Contractual

- Indirect

The project area is now a more safe and enjoyable recreational area for hikers, sportsman and other recreational users.

Project Statistics:

Award Amount: $50,000

Acres Impacted: The project covered about ½ mile of stream, but was concentrated on a ¼ mile stretch, and included restoration activities within the stream itself and on the land next to it. This included the restoration of an area around a section of trail that was approximately 1,400 linear feet.

Project Timetable: October 1, 2002 – September 30, 2004

Project Location: Eighteenmile Creek, Niagara, New York

Great Lakes System: Streams, tributaries, connecting channels

Culturally, economically, and/or biologically significant plants, animals, and habitats: Significant Coastal Fish and Wildlife Habitat

Stressors Impairing System: Point and non-point source pollution, erosion, hydrologic modification, and neglect

Partners: Niagara County, Town of Newfane, U.S. Army Corps of Engineers, NOAA's Office of Ocean and Coastal Resource Management in conjunction with New York State Department of State Coastal Management Program, NY State Department of Environmental Conservation, USDA Natural Resources Conservation Service, Lake Plains Resource Conservation and Development Council, and AmeriCorps

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#20 - Eighteenmile Creek Workshop

(FY2001 - GL97557201-1)

Niagara County, New York

Department of Planning and Development
59 Park Avenue
Lockport, NY 14094

Project Narrative:

Eighteenmile Creek in Niagara County, New York was identified by federal, state, and local agencies to be in a state of decline due to years of point and non-point sources of pollution, hydrologic modifications, erosion, and neglect. As such, this area was listed as an Area of Concern (AOC) by the United States Environmental Protection Agency (U.S. EPA) and the International Joint Commission (IJC). In 1997, the New York State Department of Environmental Conservation developed a Remedial Action Plan (RAP) to help guide restoration efforts. With grant funding from National Oceanic and Atmospheric Administration's Office of Ocean and Coastal Resource Management, the New York State Department of State Coastal Management Program, the United States Environmental Protection Agency's Great Lakes National Program Office, the United States Army Corps of Engineers, and the Niagara County Legislature, a $1 million streambank stabilization and habitat enhancement project took place over a 2.5 year period. In addition to construction, a stream classification report and planning plan were prepared, extensive floral and faunal studies were conducted, a cultural resources investigation and a

watershed concept document were completed, and extensive public outreach took place. The main component of the public outreach effort was the two-day workshop sponsored by U.S. EPA GLNPO.

The workshop was held on May 11 and 12, 2004 and focused on a variety of watershed related issues with the Eighteenmile Creek project showcased as an example of how to successfully work with nature. The first day was a series of ten technical speaker presentations by local and national experts. The second day of the workshop was designed to be a community day, where an educational field trip was held for local elementary students, and concluded with an environmental fair where twenty local environmental organizations showcased their activities.

Project Results:

Environmental Sciences and Management
-Planning, Coordination, Collaboration Conferences
Two-day Eighteenmile Creek Workshop
Public Stewardship
- Outreach, Information Exchange
Two-day Eighteenmile Creek Workshop
Groundbreaking Ceremony
Materials including: Fact Sheet, Project brochure, Educational video, Local newspaper articles, Pens, Stickers, T-shirts, Litterbags
- Education
Educational field trip was held for local elementary students
Economic Impact
-Direct
$16,000 – Leveraged
$9,300 – Personnel
$2,000 – Contractual

Project Statistics:

Award Amount: $10,500
Project Timetable: August 1, 2001 – August 1, 2004
Project Location: Eighteenmile Creek in Niagara County, New York
Partners: National Oceanic and Atmospheric Administration's Office of Ocean and Coastal Resource Management, the New York State Department of State Coastal Management Program, the United States Army Corps of Engineers and the Niagara County Legislature.

#21 - Environmental Risk in Great Lakes Habitats Conference (See the "Grant Servicing Intermediary" description of the cluster grant to the National Fish and Wildlife Foundation for more information.)
(FY2004 - GL96518001 [GL2004-150])
Cleveland State University
Center for Environmental Science, Technology and Policy
MC 219
2199 Euclid Ave.
Cleveland, OH 44115

Project Narrative:

This conference entitled, "Environmental Risk and Nonindigenous Species Invasions in the Great Lakes Region: Risk Analysis, Management, and Communication," highlighted invasive species researchers from Cleveland State as well as invited speakers from around the country. Volunteer poster presentations were solicited from researchers and land managers from public and private sectors. Selected manuscripts stemming from the conference were to be published in the peer-reviewed scientific journal, *Risk Analysis: An International Journal.*

Project Results:

Environmental Science and Management
- Scientific study
The conference's sessions provided an opportunity to share the results of scientific research.
Public Stewardship

- Information exchange
Presenters shared information through paper and poster presentations and keynote speeches.
- Partnership building
Around 70 participants who attended the conference were provided with an excellent networking opportunity.
Ecosystem Theme
- Invasive Species
The conference was dedicated to environmental risk associated with invasive species.
Economic Impact
- Direct
(See the "Grant Servicing Intermediary" description of the cluster grant to the National Fish and Wildlife Foundation for more information.)

Project Statistics:
Award Amount: $4,033.94
Project Timetable: September 1, 2004 – June 30, 2006
Project Location: Cleveland State University
Great Lakes System: all systems
Stressors Impairing System: Invasive species
Partners: Program for Excellence in Risk Analysis at Cleveland State University

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#22 - Evaluation of Lake Sturgeon Habitat in the Genesee River
(FY2000 – DW-14-947991-01-0, DW-14-947993-01-0)
U.S. Fish and Wildlife Service
405 North French Road, Suite 120A
Amherst, New York 14228
716-691-5456
-and-
U.S. Geological Survey
Tunison Laboratory of Aquatic Science
3075 Gracie Road
Cortland, New York 13045-9357
607-753-9391

Project Narrative:

Lake sturgeon is a native fish species that is a species of concern across the Great Lakes Region. Historically abundant in Lake Ontario, this large, primitive, macroinvertivore has virtually disappeared due to over fishing and habitat degradation. Management and restoration of any threatened species requires careful reassessment of the habitat in which the species were once common. The Genesee River is one of the major tributaries to Lake Ontario. Historically, the lower portion of the river had a substantial sturgeon presence, but it was extirpated before the 1930's. River health has improved to the point that there was a window of opportunity to explore lake sturgeon restoration possibilities. One management tool used in threatened species conservation is the experimental stocking of hatchery-reared fish into areas where the original populations have been extirpated for an applied evaluation of the current available habitat suitability.

In September 2003, 900 fingerling lake sturgeon were planted at Genesee River kilometer (rkm) 9.1. One hundred and sixty seven juvenile sturgeon were captured or recaptured during the first year of habitat use assessment. In October 2004, the Schnabel population estimate was 366 individuals (95% CI 248 to 563) present in the river more than one year after introduction. In September of 2004, an additional 1,000 fingerlings were released. During the 2005 field season, the majority of 441 captures were in the deepest parts of each sampled river reach with the most successful sites the same as in 2004. For the most part these sites had gravelly to sandy substrates and were spread throughout the assessment area. Sturgeon presence was not correlated with the water condition factors measured. The Schnabel population estimate as of August of 2005 was 392 individuals still present of the 900 released in the 03YC (95% CI 319 to 481) and 679 individuals still present of the 1,000 released in the 04YC (95% CI 498 to 952).

These results indicate that the released juvenile sturgeon are successfully using the available Genesee River habitat as nursery habitat in a manner consistent with habitat suitability predictions. Future assessments are needed to confirm long term success of these fish and their continuing use of the Genesee River.

Project Results:

Environmental Sciences and Management

-*Scientific Study*

Study evaluating the lake sturgeon habitat in the Genesee River and the successfulness of juvenile stocking efforts during 2003-2004

Economic Impact

-Direct

$9,500 – Personnel

Project Statistics:

Award Amount: $28,420

Project Timetable: January 1, 2001 – December 31, 2003

Project Location: Genesee River

Great Lakes System: Open/nearshore waters

Culturally, Economically, and/or Biologically significant plants, animals, and habitats: Lake Sturgeon

Stressors Impairing the System: Habitat loss, over fishing

#23 - Exploring Our Natural World: A Biodiversity Atlas of the Lake Huron to Lake Erie Corridor (FY2000, 2003 - GL97536601-0, -3)

Wildlife Habitat Council
8737 Colesville Rd, Suite 800
Silver Spring, Maryland 20910
301-588-8994; Fax 301-588-4629
Biribauerc@dteenergy.com

Project Narrative:

This project supported the creation of a 144 page atlas entitled, "Exploring Our Natural World: A Biodiversity Atlas of the Lake Huron to Lake Erie Corridor." This publication, developed as a collaboration over two years by a diverse group of scientists, government agents, industry representatives, and teachers, addresses many different aspects of biodiversity including the geology and physical landscape, the inland ecology and shoreline ecosystems, and human influences on the region (St. Clair, Macomb, Oakland, Wayne Livingston, Washtenaw, and Monroe counties in the U.S. and Lambton, Kent and Essex counties in Canada). The atlas sheds light on the globally unique biodiversity of the region by featuring its natural communities, coastal wetlands, tallgrass prairies and oak savanna, emergent marsh, fen, bogs, forests and their watersheds. The atlas highlights how these areas serve as important habitat for wildlife, while also touching on the sociological aspects of the region, including the pressures of development on natural areas. The atlas also emphasizes how corporation can make a difference in the amount of habitat available to wildlife through enhanced stewardship of their properties. An educational component highlights curriculum that can be used to teach ecological concepts presented in the Atlas, as well as a list of field trip destinations.

Project Results:

Public Stewardship

-*Outreach, Information Exchange*

Creation of 144 page atlas entitled, "Exploring Our Natural World: A Biodiversity Atlas of the Lake Huron to Lake Erie Corridor."

-*Education*

There is an educational component to the atlas which highlights curriculum that can be used to teach ecological concepts presented in the Atlas, as well as a list of field trip destinations.

-*Volunteers*

Undergraduate interns from University of Michigan, Dearborn and local community members volunteered their time which amounted to hundreds of hours.

Economic Impact

-Direct (FY2000)
$13,800 – Leveraged
$51,000 – Personnel
$21,000 – Contractual

Project Statistics:

Award Amount: $100,805 (FY2000 - $95,805; FY2003 - $5,000)
Project Timetable: October 1, 2000 – September 30, 2004
Project Location: The Atlas describes the geographical region within St. Clair, Macomb, Oakland, Wayne Livingston, Washtenaw, and Monroe counties in the U.S. and Lambton, Kent and Essex counties in Canada
Great Lakes System: All systems
Culturally, Economically, and/or Biologically significant plants, animals, and habitats: Coastal wetlands, tallgrass prairies and oak savanna, emergent marsh, fen, bogs, forests and their watersheds.
Stressors Impairing the System: Development
Partners: University of Michigan - Dearborn, local governments, NGOs and business leaders, DTE Energy, La-Z-Boy Incorporated, Ontario Power Generation, Monroe County Tourism and Convention Bureau

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#24 - Fen and Sedge Meadow Restoration and Maintenance

(FY2002 - GL97558301-0)

Indiana Department of Natural Resources
402 West Washington Street, Room W273
Indianapolis, Indiana 46204
260-691-3401

Project Narrative:

In pre-settlement times fire played an important role in maintaining open fen habitats. With fire suppression following European settlement, succession is converting these fens into shrub thickets, and eventually swamps forest. This is significant as fen is a diverse and increasingly rare community that is critical habitat for a number of rare plants and animals.

This project used mechanical brush cutting and herbicide to supplement burning, as it is difficult to maintain fens by burning alone. Additionally, a series of U.S. Department of Agriculture aerial photographs taken over time were used to document the decrease in open fen within the study area. During this project 57.7 acres were cleared of brush, while 24.9 acres were treated with herbicides for re-sprouting in 2003 and 15.1 acres were treated in 2004 (10.6 of which were newly treated acres).

Project Results:

Environmental Sciences and Management

-*Ecological Restoration*
57.7 acres of brush were cleared
35.5 acres were treated with herbicides
-*Inventory, Assessment, Classification*
Aerial photographs were used to document the decrease in open fen lands within study area

Economic Impact

-Direct
$15,800 – Leveraged
$20,748 – Personnel
$34,800 – Contractual

Project Statistics:

Award Amount: $59,994
Acres Impacted: 57.7 acres

Project Timetable: October 1, 2002 – September 30, 2004
Project Location: Five fens (Lime Lake, Buckbean South, Sawmill, Trinity, and Nasby Fen) located in Steuben and LaGrange County Indiana
Great Lakes System: Inland lakes and wetlands
Culturally, Economically, and/or Biologically significant plants, animals, and habitats: fens and sedge meadows
Stressors Impairing the System: Development, invasive species
Partners: Pigeon River Fish and Wildlife Area, Fawn River Fish Hatchery

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#25 - A GIS Framework for Bird Conservation and Monitoring

(FY2000 - GL97536501-0)
University of Wisconsin – Green Bay
2420 Nicolet Drive
Green Bay, Wisconsin 54311-7001
920-465-2272

Project Narrative:

This project helped to identify conservation areas for breeding birds in the Western Great Lakes Basin. This region is particularly important for populations of neotropical migratory birds, including a number of species that have experienced steady declines during the past 20 years. Utilizing the data from thousands of point-centered bird counts, along with data on land cover and climate, predictive models were developed for 82 species. Maps were then generated to indicate places of high conservation priority. The resolution of these maps is better than any maps available from breeding bird atlases or the North American Breeding Bird Survey, which do not take into account habitat in different geographic areas. "Hotspots" of bird conservation emerge by combining maps of sensitive species. An interactive, web-based application makes this information available to local governments, land trusts, private conservation organizations, state and federal agencies, environmental consulting firms, scientific researchers, and others who make decisions that affect the quality of habitats for breeding bird populations.

Project Results:

Environmental Sciences and Management
-*Scientific Study*
Research and analysis on the maps and models will lead to the development of scientific manuscripts.
Economic Impact
-Direct
$7,303 – Leveraged
$27,651 – Personnel
$83,389 – Contractual

Project Statistics:

Award Amount: $138,759
Project Timetable: October 1, 2000 – September 30, 2002
Project Location: Western Great Lakes Basin
Culturally, Economically, and/or Biologically significant plants, animals, and habitats: neotropical migratory birds

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#26 - GIS Mapping of Lake Superior Spawning and Nursery Areas

(FY2000 - GL975367-01)
Great Lakes Indian Fish and Wildlife Commission
550 Babcock Dr. Rm. B-102
Madison, WI 53706

Project Narrative:

This project used the *Atlas of the Spawning and Nursery Areas of Great Lakes Fishes, Volume II, Lake Superior* to prepare GIS coverage identifying known spawning and nursery locations for fish species of interest in Lake Superior and its tributaries. Additional information compiled included navigation routes, lake bathymetry, and Lake Superior watershed lakes and rivers. These maps were to be made available to state, federal, and tribal natural resource agencies and the public via GLIFWC's internet map server, and a CD containing all GIS data coverages and digital images of produced maps was going to be distributed to GLNPO and the Lake Superior Aquatics Committee. These maps will be valuable tools in the effective monitoring and protection of crucial habitat for Lake Superior's fishery.

Project Results:

Environmental Science and Management
- *Inventory/assessment/classification*
This project created a map-based inventory of known spawning sites for Lake Superior fish species of interest.
Ecosystem Theme
- *Fish and wildlife, biodiversity, and rare of threatened species*
The maps of these spawning sites will aid the management of Lake Superior's fishery.
Economic Impact
- *Direct*
$3,700 – Leveraged
$6,804 – Personnel
- *Indirect*
The management resource created by this project could aid in the improvement of Lake Superior Fisheries, therefore leading to growth in recreational fishing.

Project Statistics:

Award Amount: $15,585
Project Timetable: October 1, 2000 – September 30, 2001
Project Location: Lake Superior
Great Lakes System: Open/nearshore waters; Streams, tributaries, connecting channels
Culturally, economically, and/or biologically significant plants, animals, and habitats: Many of the fish species included in this project are significant in cultural, economic, and biological ways.
Stressors Impairing System: over-fishing, pollution, invasive species, and habitat destruction
Partners: Great Lakes Indian Fish and Wildlife Commission, U.S. Fish and Wildlife Service, Lake Superior Aquatics Committee, National Oceanic and Atmospheric Administration, and Ontario Ministry of Natural Resources

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#27 - Go Wild! With Native Plants, Phase II

(FY1999 – GL98559402-0)
Michigan Association of Conservation Districts
P.O. Box 539
Lake City, Michigan 49651
616-839-6677

Project Narrative:

This project was an expansion of a project previously funded by GLNPO in FY1998, in which the Michigan Association of Conservation Districts (MACD) continues to develop prototypes of successful native plants use in ecosystem restoration and native landscaping. Through these grants, 41 Districts (32 as part of Phase II) received technical training programs on the use of native plants in their communities, which included workshop sessions that discussed: native plant rescue; developing a native plant sale program, native plants for shoreline landscaping and restoration; and native plants for restoration of oak savannas and pine barrens. Workshops for landowners were also held throughout the Districts, at which native plant literature and other educational information was distributed. Michigan Conservation Districts were encouraged to sponsor the sale of Michigan native plant material through their District tree sale and other native plant sales. Similarly, warm season grass seeds were collected and propagated in order to obtain a substantial quantity which could then be distributed for sale throughout the districts. A presentation was made on the MACD Native Plant program at the North Central regional meeting of the National Association of Conservation Districts held at Sault Se. Marie, MI in 2000. The

establishment and updating of a website (www.macd.org) was another important component of this grant as it provided educational outreach opportunities.

Project Results:

Environmental Sciences and Management
-Ecological Restoration
Collecting and propagation of Michigan native plants
-Inventory, Assessment, Classification
A list of Conservation Species of Michigan which are key species to ecological restoration of critical habitats at-risk was generated
Public Stewardship
-Outreach, Information Exchange
Technical training programs and workshops on native plants were held
Presentation given at the North Central regional meeting of the National Association of Conservation Districts
Development of educational website
Economic Impact
-Direct
$63,500 – Leveraged
$132,000 – Personnel

Project Statistics:

Award Amount: $150,000
Project Timetable: October 1, 1999 – September 30, 2001
Project Location: Michigan
Great Lakes System: Upland
Culturally, Economically, and/or Biologically significant plants, animals, and habitats: Michigan native plants
Stressors Impairing the System: Non-native species
Partners: Michigan Department of Agriculture, U.S. Department of Agriculture National Resource Conservation Service, Rose Lake Plant Material Center, Wildtype Native Plant Nursery, Michigan Department of Natural Resources

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#28 - Great Lakes Bat and Mine Protection and Restoration Project

(FY1999 - GL975161-01-0)
Bat Conservation International
P.O. Box 162603
Austin, Texas 78716
512-327-9721

Project Narrative:

The Great Lakes region houses the largest known concentration of hibernating bats in the world. These bats are critical to our environment and economy (acting as natural pest agents; without them farmers and foresters are forced to spray thousands of additional acres with pesticides) and without the underground roosts critical to their hibernation needs, these bat colonies would not exist.

This project contained two main components: survey of abandoned mines and conservation actions/bat-compatible mine closures. During the winter of 1990/2000 and 2000/2001, twenty-five mines were surveyed, identifying the presence/absence of bats, estimated hibernating populations, and the mines were ranked in order of importance of protection. In addition, fourteen bat-compatible gates were constructed at ten different mine sites, thus aiding in the protection of approximately 400,000 bats.

Project Results:

Environmental Sciences and Management
-Ecological Protection
Protection of over 400,000 bats
-Inventory, Assessment, Classification
Survey of 25 mines within the Great Lakes region

Public Stewardship
Outreach, Information Exchange
Two-part National Geographic Radio Expedition on National Public Radio's Morning Edition
Class room presentations
Local lectures
Community events
Local media coverage
BCI's "Bats of the Great Lakes" poster
A featured article in BCI's *BATS* magazine (Winter 2000)
Economic Impact
-Direct
$168,000 – Leveraged
$89,600 - Personnel

Project Statistics:
Award Amount: $24,000
Project Timetable: October 1, 1999 – September 30, 2001
Project Location: Mines located near Hancock and Mass, Michigan
Great Lakes System: Uplands
Culturally, Economically, and/or Biologically significant plants, animals, and habitats: Bats
Stressors Impairing the System: Inaccessibility of cave habitat by non-bat-compatible gates
Partners: USDA Natural Resources Conservation Service, USDA Forest Service, USDI National Parks Service, Michigan Department of Natural Resources, Minnesota Department of Natural Resources, Wisconsin Department of Natural Resources, Red Metal Minerals, Bat Conservation International, National Fish and Wildlife Foundation, Quincy Mine Hoist Association, The George Gund Foundation, The Lynde and Harry Bradley Foundation, Verne and Marion Read, Steve Smith, Dr. Allen Kurta (Eastern Michigan University).

#29- Great Lakes Coastal Wetlands Consortium
(FY 2001, 2002 - GL97547301, 02)
Great Lakes Commission
Eisenhower Corporate Park
2805 S. Industrial Hwy, Suite 100
Ann Arbor, MI 48104-6791
734-971-9135

Project Narrative:

The Great Lakes Coastal Wetlands Consortium consists of scientific and policy experts drawn from key U.S. and Canadian federal agencies, state and provincial agencies, non-governmental organizations, and other interest groups with responsibility for coastal wetlands monitoring. Approximately two dozen agencies, organizations and institutions have been brought into the Consortium as Project Management Team members. This is an unprecedented assembly of coastal wetlands expertise. In addition, other members are brought in as small project teams are formed to address discrete project elements and pilot studies. The Consortium is coordinated by staff at the Great Lakes Commission (GLC) in Ann Arbor, Michigan.

The Consortium's purpose is to design an implementable, long-term program to monitor Great Lakes coastal wetlands. This is being accomplished through the development of indicators to assess the condition of Great Lakes coastal wetlands. The selected indicators were selected through the State of the Lake Ecosystem Conference (SOLEC) process. The Consortium is providing scientific support for this monitoring program; creating a database that is publicly accessible; recruiting the leadership required to implement the long-term monitoring program; and developing a network of funders and agencies who will support the Great Lakes coastal wetlands monitoring program.

In phase 1 of the Consortium cooperative agreement, state and federal wetland inventories were collected and processed toward the development of a comprehensive coastal wetlands inventory. A plenary and breakout session at SOLEC was organized to report on progress in developing a long term monitoring program. In phase 2, indicator analyses were completed for contaminants in snapping turtle eggs and an Index of biotic integrity completed for plants, macro-invertebrates, fish, frogs/toads, and wetland birds. Coastal wetlands were mapped and

classified according to a new classification system drafted by the Consortium. Appropriate wetland staffs in Michigan, New York, Ohio, and Ontario were briefed about the long term monitoring planning effort.

Phase 3 of the project is expected to be completed September 30, 2007. The long term monitoring program will be in place. Implementation of the program is expected to begin in 2008. Information about the Great Lakes Coastal Wetlands Consortium can be found at http://glc.org/wetlands/.

Project Results:

Environmental Science and Management

- *Planning/coordination/collaboration*

Project management team composed of different agencies and universities, Great Lakes Commission secretariat

- *Iinventory/assessment/classification*

All coastal wetlands mapped and classified—200,000 hectares

- *Monitoring/indicators*

8 of 13 indicators identified as a result of the State of the Lakes Ecosystem conferences (SOLEC) tested and monitoring protocols developed

Economic Impact

- *Direct*

$400,000 match

Project Statistics:

Award Amount: Phase 1: $400,000; Phase 2: $400,000
Acres Impacted: 200,000 hectares
Project Timetable: 12/01/00 – 11/30/04
Project Location: basinwide, binational
Great Lakes System: Coastal wetlands
Culturally, economically, and/or biologically significant plants, animals, and habitats: numerous rare and endangered wetland plants, amphibians, birds
Stressors Impairing System: habitat degradation
Partners: Environment Canada—Canadian Wildlife Service, Michigan State University—Extension, U.S. Corps of Engineers, Bird Studies Canada, U.S. Geological Survey, Grand Valley State University, Cornell University, Kent State University, Ontario Ministry of Natural Resources, Veridian Systems

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#30 - Great Lakes Communications Toolbox (See the "Grant Servicing Intermediary" description of the cluster grant to the National Fish and Wildlife Foundation for more information.)
(FY2004 - GL96518001 [GL2004-163])
Biodiversity Project
214 N. Henry Street, Suite 201
Madison, Wisconsin 53703
608-250-9876; Fax 608-257-3513
project@biodiverse.ord

Project Narrative:

This project helped fund the development of the electronic "publication" CD-ROM entitled "Great Lakes Communication Toolbox" which was designed to enable citizens and community-based groups to promote awareness of four key Great Lakes issues: water quality; water quantity; habitat protection; and invasive species. The toolbox contained a range of resources on the four issues – from Great Lakes advertisements and radio spots, to "ready to print" newsletter articles, press material, educational website content, and regional media lists. Additionally, the CD-ROM included supporting documentation and tools for non-profit communications capacity building, including: press release templates, tips for Great Lakes message development, regional media-contact lists, public opinion polling data on the Great Lakes and links to useful Great Lakes-related Web sites. The CD-ROM was distributed to more than 200 Great Lakes basin groups representing tens of thousands of individuals.

Project Results:

Public Stewardship

-Outreach, Information Exchange

Development of the electronic "publication" CD-ROM entitled "Great Lakes Communication Toolbox"
Economic Impact
-Direct
Hired a Limited-Term-Contract-Employee for duration of project
(See the "Grant Servicing Intermediary" description of the cluster grant to the National Fish and Wildlife Foundation for more information.)

Project Statistics:
Award Amount: $4,800
Project Timetable: October 1, 2004 – June 3, 2005
Project Location: Madison, Wisconsin
Partners: Great Lakes Aquatic Habitat Network and Fund

#31 - Great Lakes Forest Ecosystem Health Indicators Development Project
(FY 2001 – GL91783001-0)
Sigurd Olson Environmental Institute, Northland College
1411 Ellis Avenue
Ashland, WI 54806

Project Narrative:
The Sigurd Olson Environmental Institute established a network of agencies, individuals, and organizations in the United States and Canada to determine what criteria and indicators are necessary and sufficient to measure the health of the Great Lakes forests. Through a series of meetings, phone calls, and other communications, the network generated information detailing current status of data and knowledge of forest health, and identified gaps and resources needed to develop a suite of indicators. Preliminary information and a proposed indicator suite were presented during a workshop at the 2002 State of the Lakes Ecosystem Conference. The network collaborated with EPA staff and continued to refine this body of work throughout 2003.

Project Results:
Environmental Science and Management
- *Planning/coordination/collaboration*
A network of forestry experts was created and collaborated on the development of Great Lakes forest ecosystem indicators.
-*monitoring/indicators*
This project resulted in the development of a proposed suite of forest ecosystem indicators for the Great Lakes according to the SOLEC indicator framework.
Ecosystem Theme
- *Forests*
The indicator suite developed with this project will aid in the assessment of Great Lakes forest ecosystem health.
Economic Impact
- *Direct*
$25,000 – Leveraged
$18,500 – Personnel
$5,000 – Contractual
- *Indirect*
The existence of this proposed indicator suite will help direct future indicator development, saving time and money in future years.

Project Statistics:
Award Amount: $25,000
Project Timetable: April 15, 2002 to April 14, 2004
Project Location: Ashland, WI
Great Lakes System: Uplands
Stressors Impairing System: Development, agriculture, logging

Culturally, Economically, and/or Biologically significant plants, animals, and habitats: Great Lakes forests are home to a diverse range of plants and animals, provide an aesthetically pleasing location for outdoor recreation, and are an important factor in reducing non-point source pollution.
Partners: USDA Forest Service, Northeastern Forest Resource Planners Association, Great Lakes Forest Alliance, and others.

#32 - Great Lakes Grassroots Symposium (See the "Grant Servicing Intermediary" description of the cluster grant to the National Fish and Wildlife Foundation for more information.)
(FY2005 - GL96518001 [GL2005-47])
Tip of the Mitt Watershed Council
426 Bay St.
Petoskey, MI 49770

Project Narrative:

The Great Lakes Grassroots Symposium was held October 15th thru 16th, 2005 in Lakewood, Ohio. Participants learned from experts about issues such as stormwater runoff and the Great Lakes Charter Annex. Several workshops focused on providing tools to communicate issues to the public and the media. One-on-one consultations with Great Lakes experts, regarding communication and fundraising, were provided throughout the symposium.

Project Results:
Public Stewardship
- *Outreach/information exchange*
A variety of Great Lakes issues
Ecosystem Theme
- *Watershed issues*
Economic Impact
- *Direct*
$22,489 - Leveraged
(See the "Grant Servicing Intermediary" description of the cluster grant to the National Fish and Wildlife Foundation for more information.)

Project Statistics:
Award Amount: $5,000
Project Timetable: July 1, 2005 – June 1, 2006
Project Location: Lakewood, OH
Great Lakes System: All

#33 - Great Lakes Student Summit (See the "Grant Servicing Intermediary" description of the cluster grant to the National Fish and Wildlife Foundation for more information.)
(FY2003 - GL96518001 [GL2003-004])
Erie County Environmental Education Institute, Inc.
PO Box 56
Buffalo, NY 14205

Project Narrative:

During this project the planning and promotion of the Great Lakes Student Summit (GLSS) was completed. The GLSS met 25 times during the first phase of the project, and also recruited, promoted, and advertised the Student Summit to youth groups and schools throughout the Great Lakes basin. Flyers and newsletters were prepared and disseminated to over 3,000 individuals. Also, the GLSS steering committee arranged and coordinated field trips, transportation, food, lodging, entertainment and workshops for both students and teachers.

Project Results:

Environmental Sciences and Management
Public Stewardship
-Outreach, Information Exchange
Information was disseminated regarding the Great Lakes Student Summit
-Partnership Building
Extensive partnership network
Economic Impact
-Direct
$5,400 – Personnel
$5,400 – Contractual
(See the "Grant Servicing Intermediary" description of the cluster grant to the National Fish and Wildlife Foundation for more information.)

Project Statistics:
Award Amount: $20,000
Project Timetable: October 1, 2003 – September 30, 2005
Partners: Blanchard and Associates, Science Kit, Bachman Company, Buffalo and Erie County Historical Development Corporation, Seven Seas Sailing Center, Talking Leaves Books, Tops Markets, Great Lakes Sea Grant Network, Great Lakes Research Laboratory, Sigurd Olson Environmental Institute, International Joint Commission, New York, Geographic Alliance, Buffalo Community Schools Arts and Athletic Association, Wellness Institute of Greater Buffalo, Paleontological Outdoor Education Center, Alden High School, Buffalo Audubon Society

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#34 - Great Lakes Watershed Planning Workshop
(FY2001 – GL 97555501-0)
The Nature Conservancy
Great Lakes Program
8 South Michigan Ave. Suite 2301
Chicago IL, 60603
(312) 759-8017
lmorrison@tnc.org

Project Narrative:
The Nature Conservancy's Great Lakes Program developed and hosted a professionally facilitated watershed-training workshop. The workshop entitles, *Working at a Watershed Level: A Training Course for The Nature Conservancy, Michigan Dune Alliance and Local Partners,* was held in Ann Arbor, Michigan on June 12-13, 2001. The workshop provided 50 participants with a unique training opportunity focused on how to develop effective, long-term conservation strategies within a watershed context. The three main objectives of this workshop included: providing an orientation and exposure to the wide range of scientific, technical, community and organizational issues and approaches to "working at a watershed level," providing a framework for better integrating terrestrial and freshwater biodiversity conservation needs into planning and practices, and informing and inspiring action to ensure greater conservation success at the watershed level.

Project Result:
Environmental Sciences and Management
-Planning, Coordination, Collaboration, Conferences
Two-day watershed-training workshop
Economic Impact
-Direct
$3,705 – Leveraged
$3,849 – Personnel
$17,125 – Contractual
-Indirect
Moneys leveraged from the Charles Steward Mott Foundation

Project Statistics

Award Amount: $28,395
Project Timeline: July 1, 2001– June 30, 2003
Project Location: Ann Arbor, Michigan
Partners: Charles Steward Mott Foundation, Tetra Tech, Inc

#35 - Habitat Protection at Indian Boundary Prairies
(FY2002 - GL97513201-0)
The Nature Conservancy
8 S. Michigan Ave., #2301
Chicago, IL 60603

Project Narrative:

In collaboration with volunteers and academic and conservation partners, The Nature Conservancy (TNC) worked to restore ecological processes and manage the Indian Boundary Prairies remnant prairie and wetland habitats. The specific focus was on the control and removal of native and exotic invasive woody species, and the control and removal of exotic herbaceous species which have been encroaching into the prairie/wetland habitats of the Indian Boundary Prairies for more than a decade. This restoration work was done in the Markham Prairie East Site, and was concentrated in the central wet-mesic area of the site.

Project Results:

Environmental Science and Management
- *Ecological restoration*
This project involved the control and removal of exotic plant species.
Public Stewardship
- *Protection and restoration volunteers*
Volunteers aided in restoration activities.
Ecosystem Theme
- *Grasslands and Invasive Species*
This project focused on invasive species affecting native grasslands.
Economic Impact
- *Direct*
$3,264 – Leveraged
$19,175 – Personnel

Project Statistics:

Award Amount: $35,000
Acres Impacted: 35-acre Markham East site
Project Timetable: October 1, 2002 – September 30, 2004
Project Location: Indian Boundary Prairies in Cook County, IL
Great Lakes System: Lakeplain
Culturally, economically, and/or biologically significant plants, animals, and habitats: Native Lake Michigan lakeplain prairie. A portion of the prairie was also designated as a National Natural Landmark by the U.S. Department of the Interior.
Stressors Impairing System: development
Partners: Unknown

#36 - Herptile Monitoring Program for Lake Superior Basin
(FY2003 - GL96502301-0)
Great Lakes Indiana Fish and Wildlife Commission
P.O. Box 9
Odanah, WI 54861

Project Narrative:

The Lake Superior Lake-wide Management Plan (LaMP 2000) has identified reptiles and amphibians as a critical group to be monitored, sine they are sensitive to both anthropogenic perturbations and to chemical contaminants. It is believed that since Lake Superior is at the northern edge of the natural range of many herptile species declines in their abundance within the basin may be indicative of pending declines elsewhere. Herptiles may also be particularly useful for monitoring in the Areas of Concern to document progress in remediation and restoration at those sites.

This project helped fund a one-day workshop which brought together reptile and amphibian experts from around the Lake Superior basin to initiate discussion for the implementation of a basin-wide herptile monitoring program. Specific objectives included: identifying species which warrant monitoring, identifying which species can be effectively monitored, and discussions on appropriate monitoring methods or techniques for the species identified. During the workshop nine 20-minute presentations were given which was followed by a moderated, round-table discussion.

Project Results:

Environmental Sciences and Management
Planning, Coordination, Collaboration, Conference
One-day herptile workshop
-*Monitoring, Indicators*
Set up basin-wide herptile monitoring program
Economic Impact
-Direct
$400 – Leveraged
$350 – Personnel
$2,000 – Contractual

Project Statistics:

Award Amount: $7,247
Project Timetable: June 10, 2003 – June 9, 2004
Project Location: Duluth, Minnesota
Great Lakes System: Uplands
Culturally, Economically, and/or Biologically significant plants, animals, and habitats: Reptiles and amphibians
Stressors Impairing the System: Development, contaminants

#37 - Identification of Lake Sturgeon (*Acipenser fulvescens)* Habitat in the St. Lawrence River (FY1997 - GL97502701-0 [also listed as GL985675-01])

The Research Foundation of State University of New York
P.O. Box 9
Albany, New York 12201

Project Narrative:

This project helped fund a study which examined the spatial distribution, movement and preferred habitats of juvenile lake sturgeon in the St. Lawrence River below the FDR Power Project. Catch per unit effort results for juveniles suggest non-random distribution within the study area with the largest concentrations of juveniles captured within specific areas of the lower reaches of a non-flowing bypass channel. Ultrasonic telemetry results indicated that the juveniles in the study exhibited high levels of site fidelity to preferred microhabitats characterized by low current velocities and large expanses of silt. Chironomidae and brachycentridae were the two most abundant prey types found in samples of macrobenthos samples collected from areas identified as juvenile habitat.

Project Results:

Environmental Sciences and Management
-*Scientific Study*
Study which examined the spatial distribution, movement and preferred habitats of juvenile lake sturgeon in the St. Lawrence River

Economic Impact
-Direct
$2,872 – Leveraged

Project Statistics:
Award Amount: $20,283
Project Timetable: September 15, 1997 – September 14, 1998
Project Location: St. Lawrence River below the FDR Power Project
Great Lakes System: Streams, tributaries, connecting channels
Culturally, Economically, and/or Biologically significant plants, animals, and habitats: Lake Sturgeon

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#38 - Improving Great Lakes Biodiversity Information in GIS
(FY1999 – GL97514301-0)
The Nature Conservancy
200 Broadway, 3rd Floor
Troy, New York 12180
518-783-3922

Project Narrative:
The report generated by this assistance can be used to help define the boundaries of rare species and significant habitats and ecological communities and make this information available in a geographic information system (GIS) format for land use decision-making in the Great Lakes basin.

Project Results:
Environmental Sciences and Management
-Inventory, Assessment, Classification
GIS database which can be used to help define the boundaries of rare species, significant habitats and ecological communities within the Great Lakes basin
Economic Impact
-Direct
$9,900 – Leveraged
$52,437 – Personnel

Project Statistics:
Award Amount: $86,221
Project Timetable: October 1, 1999 – September 30, 2002
Culturally, Economically, and/or Biologically significant plants, animals, and habitats: Rare species, significant habitats and ecological communities throughout the Great Lakes basin

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#39 - Incorporating Natural Features Data into Land Use Planning at the Community Level
(FY2001 - GL97570601-1)
Michigan State University
301 Administration Building
East Lansing, Michigan 48824
517-353-9796

Project Narrative:
Growth in the townships and villages surrounding most cities is increasing, bringing with it many of the results of sprawl. In order to make responsible decisions about growth, local jurisdictions (cities, counties and townships) need access to environmental and ecological based information. One information resource that has been adequately used in local planning and decision making is natural features data compiled by natural heritage programs, including threatened and endangered species and rare and sensitive ecosystems. This project focused on the development of information access and analysis tools that can be applied at the local jurisdictional level to

support conservation of biological diversity. The project was demonstrated in two locations in Michigan that are updating their master plans – Jackson County (in all 19 townships) and Meridian Township.

The project team worked closely with local planning commissions, decision makers, various stake-holder groups, and the public to determine information needs, timing, and delivery mechanisms. The project resulted in the development of an innovative planning tool for local jurisdictions using an interactive GIS-based decision support system. This system provides easy access for local decision makers to information needed and retain environmental values and ecosystem functions such as water quality, wetland functions, retention of green space, and biological diversity while providing developers with a higher level of certainty. While the project focused on local planning in Michigan, it provides a structure, protocols, techniques, and data delivery mechanisms that are fully transferable to other jurisdictions throughout the United States.

Project Results:

Environmental Sciences and Management
-Planning, Coordination, Collaboration, Conferences
Developed information access and analysis tools that can be applied at the local jurisdictional level to support conservation of biological diversity
Public Stewardship
-Outreach, Information Exchange
Two multi-stakeholder workshops were conducted, at which the participants were shown the database, maps depicting probability of occurrence of natural features and their conservation value in the decision process, and management recommendations
Economic Impact
-Direct
$30,825 – Leveraged
$18,667 – Personnel

Project Statistics:

Award Amount: $39,042
Project Timetable: October 1, 2001 – September 30, 2002
Project Location: Jackson County and Meridian Township, Michigan
Great Lakes System: All Systems
Stressors Impairing the System: Development
Partners: Michigan Natural Features Inventory

#40 - Indiana Coastal Workshop: Finding the Right Balance

(FY2002 – GL97591401-0)
Save the Dunes Conservation Fund
444 Barker Road
Michigan City, Indiana 46360
219-879-3564

Project Narrative:

Over the course of this 19 month project, two workshops, which addressed emerging coastal issues in Indiana, were held in Michigan City. These workshops coordinated activities and resources which related to environmental protection and sustainable economic development in Indiana's Lake Michigan basin. Indiana's 46 miles of Lake Michigan shoreline include the Indiana Dunes National Lakeshore and Indiana Dunes State Park, as well as the largest concentration of steel making, and other industrial uses, in the nation. As such, Indiana is developing a Coastal Program under the Coast Zone Management Program, and with many competing interest, which was discussed during the workshops. Determining the right balance between these land uses is vital to provide a sustainable future.

Project Results:

Environmental Sciences and Management
-Planning, Coordination, Collaboration, Conferences

Two workshops addressing emerging coastal issues, i.e. environmental protection and sustainable economic development, in Indiana were held in Michigan City.
Economic Impact
-Direct
$3,269 – Leveraged
$3,051 – Personnel

Project Statistics:
Award Amount: $5,419
Project Timetable: September 1, 2002 – April 30, 2004
Project Location: Lake Michigan Coast, Indiana
Great Lakes System: Coastal Shore
Culturally, Economically, and/or Biologically significant plants, animals, and habitats: Lake shore habitat
Stressors Impairing the System: Development

#41 - Invasive Plants: Global Issues Conferences

(FY2002 – GL97519601-0)
Chicago Botanic Garden
1000 Lake Cook Rd.
Glencoe, Illinois 60022
847-835-5440; Fax 847-835-4484

Project Narrative:

This project helped fund a three-day international symposium "Invasive Plants: Global Issues, Local Challenges" which was attended by 221 participants from across the globe. From October 27-30, 2002, scientists, environmental advocates, and conservation practitioners from around the world gathered at Chicago's Congress Plaza Hotel to discuss the dimensions of and practical approaches to the invasive plant problem. Participants convened to discuss the issues, strategies for improvement and debate methodologies for reducing the threat of invasive species. Key international terrestrial and aquatic plant scientists and land managers presented an array of lectures, presentations, and panel discussions throughout the symposium.

Project Results:
Environmental Sciences and Management
-Planning, Coordination, Collaboration, Conferences
Three-day international symposium entitled "Invasive Plants: Global Issues, Local Challenges"
Economic Impact
-Direct
$31,165 – Leveraged
$14,235 – Personnel
$18,800 – Contractual

Project Statistics:
Award Amount: $5,000
Project Timetable: October 1, 2002 – September 30, 2003
Project Location: Chicago, Illinois
Partners: University of Washington, University of Wisconsin-Madison, University of California-Davis, National Invasive Species Council, University of Illinois, University of St. Tomas, U.S. Department of Agriculture, U.S. Forest Service, Southeast Exotic Pest Plant Council, Tennessee National Areas Program, Australia's Department of Natural Resources and Mines, Division of Natural Heritage, Illinois Department of Natural Resources, California Pest Control Council, Illinois Natural Heritage Survey, Adkins Arboretum, University of Colorado, Illinois EcoWatch, Illinois Forest Watch, Illinois Prairie Watch, U.S. Geological Survey

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#42 - Lake Huron Aquatic Habitat GIS Based Decision Support System

(FY2001 – GL97574401-1)
Michigan Department of Natural Resources
P.O. Box 30028
Lansing, MI 48909-7944

Project Narrative:

Members of the Great Lakes Fishery Commission's (GLFC) Lake Huron Technical Committee collaborated to design and develop a GIS-based Decision Support System (DSS) for the Huron basin. This effort allowed the integration of data developed by the numerous U.S. and Canadian agencies responsible for conserving this system. Additional GIS habitat layers were developed to aid resource managers in addressing the fisheries, habitat objectives, and protecting the ecological areas documented in the Lake Huron Initiative and the State of the Lake Symposium. These tools and layers were integrated into the ongoing Lake Huron GIS-based DSS.

Project accomplishments included a compilation of a database with a significant amount of spatial data, mini-research projects that addressed specific management issues, and support documents for help with the interface. Project files relate to numerous themes, such as: AOCs, Darcy model predictions, bird locations, environmental and stewardship layers, fish data, OMNR data, recreational fishing, shoreline classifications, USGS stream gauges, and wetlands. This project served as a successful pilot for the more geographically encompassing Great Lakes GIS Project. A steering committee has been organized to pursue development of this valuable resource.

Project Results:

Environmental Science and Management
- *Inventory/assessment/classification and scientific study*

This project involved the development of a substantial GIS data inventory, in addition to several studies aimed at addressing specific management questions. Specifically, the mini-project, *Analysis of Movement Patterns of Chinook Salmon in Lake Huron and Lake Michigan Based on Coded Wired Tags, 1990-2001,* provided valuable information about the seasonal movement patterns of this important commercial and sport fish.

Public Stewardship
- *Outreach/information exchange, partnership building*

Outreach materials were developed to provide information about the Lake Huron GIS Project, and the data inventory is also available through a website. This project also required the cooperation and collaboration of numerous groups.

Ecosystem Themes
- *Fish and Wildlife, as well as streams and wetlands*

The project covers numerous themes. The spatial data and research completed as a result of this project will be a valuable resource for future studies and management issues relating to the aquatic environment of the Lake Huron basin, its inhabitants, and the conservation and restoration of its habitats.

Economic Impact
- *Direct*

$119,197 – Leveraged
$43,323 – Personnel
$12,600 – Contractual
- *Indirect*

The resources compiled as a result of this project will enable decision makers to be more effective in plans for the basin's future.

Project Statistics:

Award Amount: $89,249
Project Timetable: January 1, 2002 – December 30, 2004
Project Location: Michigan, Lake Huron
Great Lakes System: Open/nearshore waters; Streams, tributaries, connecting channels; Coastal shore; Coastal wetlands; and Inland lakes and wetlands
Culturally, economically, and/or biologically significant plants, animals, and habitats: Inhabitants and habitats of Lake Huron's systems are all culturally, economically, and biologically significant.
Stressors Impairing System: All stressors affecting aquatic systems
Partners: Michigan DNR, NOAA, US Fish and Wildlife Service, Michigan Office of the Great Lakes, University of Michigan, Department of Fisheries and Oceans Canada, Environment Canada, Ontario Ministry of Natural

Resources, Sault College, The Nature Conservancy, Michigan Natural Features Inventory, and the Michigan Department of Environmental Quality.

#43 - Lake Michigan Annex, The Chicago Wilderness Biodiversity Recovery Plan (FY2002 - GL97586301-0)

Lake Michigan Federation
220 S. State Street, Suite 1900
Chicago, Illinois 60604
312-939-0838

Project Narrative:

The Biodiversity Recovery Plan was a two-year project, for which GLNPO provided funding for the first year. The primary goals for this project included; develop a Biodiversity Recovery Action Plan for the nearshore zone of Lake Michigan that complements the Chicago Wilderness Biodiversity Recovery Plan, and provide outreach and education to build constituency for specific habitat restoration projects within the Chicago Wilderness region Lake Michigan Watershed.

Initial efforts in the project focused on convening an expert advisory committee who was to assist the Federation with development of a report on regional biodiversity recovery goals for on-the-ground restoration activities. Through these efforts, research to ground the biodiversity recovery goals has been performed, planning input on the project from the Chicago Wilderness (CW) was obtained, a group to promote Lake Michigan work within the CW structure was formed, and they have established a habitat advocacy presence at multiple sites within the project area.

Project Results:

Environmental Sciences and Management
Public Stewardship
-*Outreach, Information Exchange*
Assisting the Waukegan Park District in getting funding for community participation in the Waukegan River wetlands complex
Working with the Chicago Park District to bring funding to the District in order to implement dune restoration at Rainbow Beach in Chicago
Assisted in setting the restoration agendas for both the Lake Calumet Vision Committee and the Association for the Wolf Lake Initiative
Economic Impact
-Direct
$45,000 – Leveraged
$17,537– Personnel
$4,000 – Contractual

Project Statistics:

Award Amount: $15,000
Project Timetable: May 1, 2002 – April 30, 2003
Project Location: the Chicago Wilderness Lake Michigan basin
Great Lakes System: Open/nearshore waters
Culturally, Economically, and/or Biologically significant plants, animals, and habitats: biodiversity of the nearshore zone of Lake Michigan
Partners: The Nature Conservancy, Northeastern Illinois Planning commission, Save the Dunes Conservation Fund, the Shedd Aquarium, Loyola University, Indiana Department of Environmental Management, Waukegan Harbor Citizens Advisory Group, and Chicago Wilderness

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#44 - Lake Michigan Sand Dune Protection Project: Education of Citizens in Shoreline Communities about the Importance of Sand Dune Protection (FY1999 - GL97515101-0)

Lake Michigan Federation
161 Muskegon Mall Street, Suite 502
Muskegon, Michigan 49440
616-722-5116

Project Narrative:

The dunes on Lake Michigan's eastern coast are the largest assemblage of freshwater dunes in the world. Their uniqueness comes from the important plant and wildlife species that live in them, their closeness to freshwater, and their diverse settings – beaches, foredunes, interdunal wetlands, and mature forests. The dunes help to maintain the region's tourism economy and they provide an exceptional quality of life for permanent residents. Once destroyed, they cannot be re-created.

In order to foster greater protection of the dunes, the Lake Michigan Federation recently completed this project to: increase public knowledge of Lake Michigan sand dunes, their ecological and economic values, and methods to protect them; encourage stronger protection a the local level for dunes; and stimulate coastal community dune preservation efforts. To reach these goals, the Federation produced educational materials, worked with citizens and community groups, and educators and students in shoreline schools, and conducted numerous community meetings, workshops and events.

Project Results:

Environmental Sciences and Management
Public Stewardship
-*Outreach, Information Exchange*
Created a program to encourage appreciation and stewardship of the dunes through visual arts and poetry by K – 12 school students
Generated a traveling exhibit from the art and poetry generated from local schools
Contracted a college theatre group, the Bear Creek Players, to develop and perform a skit related to sand dune protection
Regular articles in the Federation's quarterly publication, *The Monitor*
Hosted 5 community meetings in Saugatuck, Holland, Muskegon, Ludington, and Pentwater to inform citizens about the value of the dunes, history, of their protection, state regulations, and mechanisms for protection and preservation
Two sand dune protection workshops, one in the City of Muskegon on May 5, and one in Covert Township on August 2nd for local government officials, planning commissioners, and interested members of the public
-*Education*
Creation of a comprehensive sand dune education packet
Updated Federation website
Economic Impact
-Direct
$22,000 – Leveraged
$31,550 – Personnel
$5,000 – Contractual

Project Statistics:

Award Amount: $60,000
Project Timetable: September 1, 1999 – August 31, 2001
Project Location: Michigan
Great Lakes System: Uplands
Culturally, Economically, and/or Biologically significant plants, animals, and habitats: Sand dunes
Stressors Impairing the System: Development, sand dune mining
Partners: Muskegon Area Intermediate School District, Muskegon Museum of Art, the Bear Creek Players, Federated Garden Club of Michigan, Sierra Club, Carr Elementary School, Allegan County Math and Science Center, Grand Valley State University Annis Water Research Institute, Michigan Department of Natural Resources, Construction Aggregates Corporation of Michigan, Ludington State Park, The Nature Conservancy, Hart Packing Company, City of Manistee, Michigan Dune Alliance

#45 - Lake Michigan Shorelands Alliance (See the "Grant Servicing Intermediary" description of the cluster grant to the National Fish and Wildlife Foundation for more information.)
(FY2003 - GL96518001 [GL2003-039])
Gathering Waters Conservancy
211 South Peterson Street, Suite 270
Madison, Wisconsin 53703
608-251-9131; Fax 608-663-5971

Project Narrative:

This project helped fund the development of conservation plans for four sites within the Lake Michigan Basin: Brussels Hills/Garden Swamp in Door County, Red Banks/Gilson Creek in Brown and Kewaunee Counties, the Upper Milwaukee River basin in Fond du Lac, Sheboygan, Washington and Ozaukee Counties and Franklin Park Savanna in Milwaukee County. Several other conservation plans were supported through staff involvement and funding assistance. Additionally, several outreach and educational projects were conducted in order to promote basin-wide land conservation planning. These efforts included; numerous regional conferences and meetings, presentations and displays, and the distribution of a regional conservation plan "Landscapes of Opportunities."

Project Results:

Environmental Sciences and Management
-*Ecological Protection*
Over 550 acres have been permanently protected
Conservation plans generated for six priority areas
Public Stewardship
-*Outreach, Information Exchange*
Numerous regional conferences and meetings, presentations and displays, and the distribution of a regional conservation plan "Landscapes of Opportunities"
Economic Impact
-Direct
$25,000 – Leveraged
(See the "Grant Servicing Intermediary" description of the cluster grant to the National Fish and Wildlife Foundation for more information.)

Project Statistics:

Award Amount: $70,000
Acres Impacted: 550 acres
Project Timetable: October 1, 2003 – September 30, 2005
Project Location: Brussels Hills/Garden Swamp in Door County, Red Banks/Gilson Creek in Brown and Kewaunee Counties, the Upper Milwaukee River basin in Fond du Lac, Sheboygan, Washington and Ozaukee Counties and Franklin Park Savanna in Milwaukee County
Partners: Door County Land Trust, Wisconsin Department of Natural Resources, Door County Parks, Glacial Lakes Conservancy, Ozaukee Washington Land Trust, U.S. Department of Agriculture, National Resources Conservation Service, Land Conservation Partnership of Washington County, GeoBotany Systems, Southeast Wisconsin Regional Planning Commission, Milwaukee Area Land Conservancy, Milwaukee County Parks, University of Wisconsin-Madison, University of Wisconsin-Green Bay, Mayes-Wilson Associates, The Nature Conservancy

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#46 - Landscape-Level Conservation on the Tug Hill
(FY2000 – GL 97537501-0)
The Nature Conservancy
Central and Western New York Chapter
31 S. Jefferson St.
Pulaski, NY 13142
(315) 298-1040
Dthompson@tnc.org

Project Narrative:

With EPA support The Nature Conservancy was able to effectively implement a community-based conservation program: opening a local office, developing strong partnerships with public agencies and private organizations, protecting over 45,000 acres and the headwaters of two river systems within the Tug Hill core forest, conducting local and statewide outreach efforts for forest and aquatic protection, and serving as a national model for simultaneously protecting the environment and the local economy.

Project Result:

Environmental Sciences and Management
Acres Involved: 45,000
-*Ecological Protection*
Protection of over 45,000 acres and the headwaters of two river systems within the Tug Hill core forest
Public Stewardship
-*Outreach, Information Exchange*
Over 50 presentations on the ecological significance of Tug Hill's forests and aquatic systems
Joint production (Tug Hill Land Trust, NYS DEC, and a locally-renowned outdoor writer and artist) of brochure designed to inform non-industrial private forestland owners of sustainable timber harvest technique
Economic Impact
-Direct
$33,847 – Leveraged
$47,100 – Personnel
$9,000 – Contractual
Hiring of office manager and a field representative in Pulaski, New York

Project Statistics

Award Amount: $50,203
Project Timeline: September 1, 2000 – August 31, 2002
Project Location: Tug Hill, eastern shore of Lake Ontario, New York
Great Lakes System: Streams, tributaries, connecting channels; Inland lakes and wetlands; Uplands
Culturally, Economically, and/or Biologically significant plant, animal, or habitat: Wetlands and forested areas
Stressors Impairing the System: Development and deforestation
Partners: Tug Hill Commission, forest products companies, the New York State Department of Environmental Conservation, Tug Hill Tomorrow Land Trust, John Hancock Timber Investment Resources Group, locally-renowned outdoor writer and artist

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#47 - The Marsh Monitoring Program

(FY2000, 2002 - GL97513902-0, GL97582201-0)
Great Lakes United
1300 Elmwood Avenue
Buffalo, New York 14222
716-886-0142

Project Narrative:

This project helped fund the continuation of the Marsh Monitoring Program (MMP) and the dissemination of the research through scientific and other reporting venues. During 2002, data was collected from 410 routes, 324 routes in 2003, and 313 in 2004, all of which were then computerized and were proofed fro further data analyses. Geo-spatial information has been collected for all 737 routes, while 602 have geo-spatial information for each individual station. Four manuscripts and several reports were also written in conjunction with this grant.

Project Results:

Environmental Sciences and Management
-*Monitoring, Indicators*

Marsh bird and amphibian trend results were updated with 2001 ad 2002 Great Lakes basin-wide data and annual reports documenting
Report on marsh birds, amphibian and habitat status at coastal wetlands in the Durham region of metro-Toronto, Lake Ontario
Submitted indicator descriptions and status reports for SOLEC 2002 and SOLEC 2004
Manuscript on continental marshbird monitoring protocols to be published in proceedings of Partners in Flight conference, Asilomar, CA
Manuscript on use of wetland fish data to develop Indices of Biotic Integrity, which was submitted to *Journal of Great Lakes Research*
-*Scientific Study*
Manuscript submitted to the journal *Wetlands* documenting hydrologic associations of marsh bird abundance of Great Lakes coastal wetlands
Draft manuscript in preparation which documents results of research examining habitat associations of marsh birds using MMP bird and habitat data
Public Stewardship
-*Outreach, Information Exchange*
Report to IJC documenting interactions between marsh bird population indices and Great Lakes water levels
Final report for the work that Bird Studies Canada completed as part of the Great Lakes Coastal Wetlands Consortium research project
Completed and published a fact booklet documenting marshbird habitat associations and needs, marsh habitat improvement techniques, and wetland stewardship guidance and assistance entitled, "Marsh Havens: improving marsh habitat for birds in the Great Lakes Basin
Magazine article in the Winter 2004 issue of Birdscapes titled "Volunteers Help Conserve Great Lakes Marshes
Additional MMP articles appeared in Bird Studies Canada's BirdWatch Canada magazine and annual MMP newsletters
Economic Impact
-Direct
(FY2000)
$95,420 – Leveraged
$188,094 – Personnel
$2,715 – Contractual
(FY2002)
$97,590 – Leveraged

Project Statistics:
Award Amount: $297,590 (FY2000 - $200,000; FY2002 - $97,590)
Project Timetable: May 15, 2000 – April 15, 2002 and October 1, 2002 – September 30, 2004
Great Lakes System: Uplands, Coastal wetlands
Culturally, Economically, and/or Biologically significant plants, animals, and habitats: marsh birds, amphibians
Partners: Great Lakes Commission, Wildlife Habitat Canada, Environment Canada, Wetlands Habitat Fund/Eastern Habitat Joint Venture, Ontario Ministry of Natural Resources, Ontario Stewardship, Ducks Unlimited Canada

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#48 - The Michigan Dune Alliance
(FY2000 - GL975392-01)
The Conservation Fund
53 W. Jackson Blvd. Suite 1332
Chicago, Illinois 60604
312-913-9459, Fax: 312-913-9523
pkohring@aol.com

Project Narrative:
This project assisted and helped coordinate the efforts in Michigan of five regional land trusts, four government agencies, and two national organizations to partner in preserving Lake Michigan's coastal ecosystems.

Using data collected by Michigan Natural Features Inventory, the latest aerial photography, and filed inspection the partners will evaluate species and community location records to establish appropriate site quality rankings. These products were applied in identifying seven key sites for protection. Site packages were developed for these key locations having information on the natural areas, species, and area maps, along with primary considerations for conservation planning. Dune Alliance member participates received training in ecology, origin, and biological significance of the southern dunes, enabling participating organizations to implement site-based planning in order to define appropriate conservation actions.

Project Results:

Environmental Sciences and Management
Inventory, Assessment, Classification
Site packages were completed for 14 conservation areas and updates competed for 3 additional areas
Public Stewardship
-*Outreach, Information Exchange*
13 meetings were held in which land conservation stewardship experiences were shared
Field based ecology and aquatic ecosystem training occurred for member participants
One seminar was held to: bring federal funding representative and state funding agencies to meet the partners of the Michigan Dune Alliance, better understand projects and partnership opportunities, promote the needs of the Michigan Dune Alliance, and develop personal relationships with key government staff
Economic Impact
-Direct
$7,150,000 – Leveraged
$28,000 – Personnel
$46,687 – Contractual

Project Statistics:

Award Amount: $72,000
Project Timetable: August 1, 2000 – August 1, 2002
Project Location: Michigan dunes
Great Lakes System: Coastal Shore
Culturally, Economically, and/or Biologically significant plants, animals, and habitats: Dunes
Stressors Impairing the System: Development
Partners: Lake Michigan Federation, The Nature Conservancy, Michigan Department of Environmental Quality, Mott Foundation

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#49 - Misery Bay Initiative: A Plan to Protect Coastal Ecosystems

(FY2002 - GL97512201-0)
Northeast Michigan Council of Government
121 East Michell Street
Gaylord, Michigan 49735
989-732-3551

Project Narrative:

Misery Bay was identified as an area of exceptionally high ecological values in the 1998 State of the Lakes Ecosystem Conference (SOLEC) paper entitled Biodiversity Investment Areas, Near shore Terrestrial Ecosystems. Misery Bay is one of only 20 such sites identified across the entire Great Lakes Region. However, recreational activities, as well as residential development, have created a challenge within this region: accommodate and guide growth in a manner that supports healthy ecosystems.

This projected supported the creation of the Misery Bay Initiative, A Plan to Protect Coastal Resources around Misery Bay, Isaacson Bay, North Point and the many offshore islands. This comprehensive plan included identifying Misery Bay's ecological values through a detailed inventory of the natural resources; evaluating the status of planning and zoning; identifying values and assets, issues and concerns, potential and existing threats and priority conservation areas; and finally recommendations for protection of the ecological resources in the area.

Build local support and implementation of the recommendations and strategies within this plan was also an important part of project and was generated by several education and outreach efforts.

Project Results:

Environmental Sciences and Management
-Inventory, Assessment, Classification
Detailed inventory of the natural resources within Misery Bay
Public Stewardship
-Outreach, Information Exchange
Local presentations which showed existing conditions, discussed issues and concerns, and defined strategies and recommendations for Misery Bay
Economic Impact
-Direct
$3,000 – Leveraged
$28,000 – Personnel

Project Statistics:

Award Amount: $53,497
Project Timetable: October 1, 2002 – September 30, 2004
Project Location: Misery Bay, Northeastern Lower Peninsula of Michigan
Great Lakes System: All systems
Culturally, Economically, and/or Biologically significant plants, animals, and habitats: over 30 elements from the Natural Features Inventory have been identified in the Misery Bay area
Stressors Impairing the System: Development
Partners: Alpena Township, Alpena County, Alpena Conservation District, Department of Natural Resources, Natural Conservation Service, U.S. Fish and Wildlife Service, The Nature Conservancy, Conservation Fund, Headwaters Land Conservancy, Michigan Nature Association, Huron Pines RC&D, Thunder Bay National Marine Sanctuary, Beaumont Point Club, Thunder Bay River Watershed Council, Alpena County Planning Commission, LaFarge Corporation, Alpena News, Thunder Bay Island Preservation Society, and Michigan Sea Grant

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#50 - Monitoring and Assessing Marsh Habitats in Great Lakes Areas of Concern (FY2005 – GL96559301-1)

Bird Studies Canada
115 Front Street P.O. Box 160
Port Rowan, Ontario
519-583-3532, fax: 519-586-3531
stimmermans@bsc-eoc.org

Project Narrative:

This program helped fund a special two-year wetland monitoring project whose objectives included: increase Marsh Monitoring Program (MMP) marsh bird and amphibian monitoring coverage in priority marsh habitats within defined AOC boundaries as well as in marshes within larger source watershed areas, and establish paired activities to also monitor aquatic marcoinvertebrate communities and physical and chemical water quality in these same marsh habitats. Ultimately, the goal was to establish a long-term wetland monitoring and periodic assessment strategy for reporting on biological integrity of marsh habitats in Great Lakes AOCs, and ultimately help to measure the relative success of remedial action investments to delist the five designated Beneficial Use Impairments (BUIs) which include; loss of fish and wildlife habitat, degradation of fish and wildlife species, degradation of benthos, eutrophication or undesired algae, and degradation of aesthetics.

Project Results:

Environmental Sciences and Management
-Monitoring, Indicators
Monitoring study of birds, anurans, marcoinvertebrate, and water quality within the marsh habitat of 12 Areas of Concern (AOCs).
Public Stewardship

-*Volunteers*
The Marsh Monitoring Program is a unique binational marsh bird and amphibian population monitoring initiative of Bird Studies Canada that has successfully engaged volunteer naturalists since 1995 to measure the status and trends of wetland-dependant birds and amphibians.

Economic Impact
-Direct
$48,399 – Leveraged
$56,700 – Personnel
$20,896 – Contractual

Project Statistics:

Award Amount: $97,318
Project Timetable: October 1, 2004 – September 30, 2006
Project Location: Great Lakes AOCs (Ashtabula River, Clinton River, Cuyahoga River, Eighteenmile Creek, Lower Fox River/Green Bay, Muskegon Lake, Niagara Embayment, Rochester Embayment, Saginaw River/Bay, St. Clair River, St. Mary's River, and White Lake)
Great Lakes System: Streams, tributaries, connecting channels; Coastal shore; Coastal Wetlands; Inland lakes and wetlands
Culturally, Economically, and/or Biologically significant plants, animals, and habitats:
Stressors Impairing the System: Development, contaminants, invasive species
Partners: Great Lakes Commission, Marsh Monitoring Program, Environment Canada's Great Lakes Sustainability Funds

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#51 - Nearshore Habitat Priorities for Migratory Songbirds

(FY2002 - GL97538801-1 [also listed as FY1999 - GL005482-01-0])
Vermont Cooperative Fish and Wildlife Research Unit
Aiken Center
School of Natural Resources
University of Vermont
Burlington, VT 05405

Project Narrative:

This project was set up to study the stopover length and energetic conditions in migratory songbirds during stopover on the south shore of Lake Ontario. In addition, identifying areas where migratory birds concentrate during migration in the Lake Ontario basin was another component of this project. Several important conclusions were made during these studies. For the paper entitled "Differential Timing, Stopover Probabilities and Recapture Probabilities of Landbirds During Migration" these including: there is a significant differences between age and sex classes in the timing of migration at stopover sites near Lake Ontario during both spring and autumn, and there were interspecific differences for age- or sex-based in stopover and recapture probabilities, which indicated that different species utilize stopover sites differently. The study entitled, "Daily Condition Changes in Landbirds During Migration Stopover on he South Shore of Lake Ontario" also produced several conclusions, which included: there is a need for conservation attention at near-shore terrestrial habitats which provide necessary resources to refuel and continue migration. This idea is supported the determination by the regression method that on average, individuals improved their energetic condition approximately 7% per day during stopovers at these sites. "Tests for Density-Dependent Energetic Condition Change in Landbirds During Migration Stopover" also has provided interesting conclusions which included; the optimal density at a stopover site may be determined by interactions between the costs of competition and the costs of vigilance against predators. Finally, this grant supported the research associated with the research paper "Migratory Bird Stopover Concentration Areas in the Great Lakes Basin: Remote Sensing with WSR-88D (NEXRAD) Radar," which provides a description of the capabilities of WSR-88D, a tutorial on interpreting WSR-88D imagery, a series of migration images from the study sites, and an interpretive summary for each site.

Project Results:

Environmental Sciences and Management
-Scientific Study
Scientific report on the stopover length and energetic conditions in migratory songbirds during stopover on the south shore of Lake Ontario. Scientific report on studies that identified areas where migratory birds concentrate during migration in the Lake Ontario basin. Scientific report on the daily energetic condition of migrating landbirds at stopover sites on the southern shore of Lake Ontario. Scientific study on the energetic condition of migrating landbirds with respect to density for stopover sites on the southern shore of Lake Ontario.
Economic Impact
-Direct
$31,250 – Leveraged
$63,986 – Personnel

Project Statistics:
Award Amount: $97,038
Project Timetable: August 1, 1999 – December 31, 2001
Project Location: migration route to Lake Ontario
Great Lakes System: uplands
Culturally, Economically, and/or Biologically significant plants, animals, and habitats: migratory song birds
Stressors Impairing the System:
Partners: The Great Lakes Research Consortium, The Nature Conservancy's Great Lakes Program, Braddock Bay Bird Observatory, the Clemson University Radar Ornithology Laboratory, the University of Vermont School of Natural Resources, the Vermont Cooperative Fish & Wildlife Research Unit, the State University of New York College of Environmental Science and Forestry, USGS Bird Banding Laboratory, Hamlin Beach State Park, the Genesee Land Trust and Bill and June Kaiser

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#52 - Niagara Frontier Conservation Initiative
(FY2002 - GL97509601-0)
The Nature Conservancy
339 East Avenue Suite 300
Rochester, New York 14604
585-546-8030

Project Narrative:
Recognizing the need to better understand and protect the unique biodiversity of the Niagara Frontier region of New York, The Nature Conservancy (TNC) worked to complete a comprehensive biological inventory of the species, natural habitats, and landscape settings of Zoar Valley, the Cattaraugus Creek Watershed, and other Western New York shale gorge systems, entitled "Lake Erie Gorge Biodiversity Inventory & Landscape Integrity Analysis." As worked progressed on the inventory, TNC opened and staffed an office in the Niagara Frontier Region of New York to provide a means to disseminate information from the study, and to establish a "community-based" presence to advance a conservation initiative in the region.

Modeled after other successful community-based conservation projects, the Niagara Frontier Office was positioned to implement landscaped-scale ecosystem protection through a variety of methods, including fee acquisition of key lands, conservation easements, and promoting conservation awareness to partners and area stakeholders. Through this project, TNC has been successful in placing permanent protection on over 600 acres in Zoar Valley since initiating this project, which brings the total number of acres directly impacted by this project to approximately 1,005.

Also, working with the Gowanda Correctional Facility and the local Boy Scouts of America, projects involving basic trail maintenance and trail erosion have been conducted. The most visible improvement at Deer Lick is the new visitor information kiosk and brochure/trial guide. Many volunteers offered their professional expertise so that the information presented would be easy to understand and accurate.

Project Results:
Environmental Sciences and Management
-Ecological Protection

Over 600 acres in Zoar Valley have been permanently protected
-Inventory, Assessment, Classification
Comprehensive biological inventory of the species, natural habitats, and landscape settings of Zoar Valley, the Cattaraugus Creek Watershed, and other Western New York shale gorge systems, entitled "Lake Erie Gorge Biodiversity Inventory & Landscape Integrity Analysis"
Public Stewardship
-Outreach, Information Exchange
Visitor information kiosk and brochure/trial guide
-Partner Building
Numerous partnerships were established within the community through this project (see partners section)
-Volunteers
Many volunteers offered their professional expertise so that the information presented at the kiosk would be easy to understand and accurate
Local Boy Scouts of America aided in trail maintenance and trial erosion projects
Economic Impact
-Direct
$101,700 – Leveraged
$89,097 – Personnel
$15,000 – Contractual

Project Statistics:
Award Amount: $59,400
Acres Impacted: 1,005
Project Timetable: October 1, 2002 – September 30, 2004
Project Location: Niagara Frontier region of New York
Great Lakes System: Uplands; Streams, tributaries, connecting channels
Culturally, Economically, and/or Biologically significant plants, animals, and habitats: shale gorge system, Zoar Valley forest system, bald eagles, and ten rare animal species which include; the globally rare tiger beetle and the globally rare and state threatened eastern sand darter
Stressors Impairing the System:
Partners: Natural Resources Conservation Service, Soil and Water District, Cattaraugus County Planning Department, NYS Department of Environmental Conservation, University at Buffalo Environmental Law Clinic, Nature Sanctuary Society of Western New York, Western New York Land Conservancy, Western Pennsylvania Conservancy, New York Rivers United, Seneca Nation of Indians environment staff, Western New York Old Growth Forest Association, Friends of Zoar Valley group, Gowanda Correctional Facility, Boy Scouts of America, Buffalo Botanical Society, Northeast Forest, Inc., Danzer Forestland

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#53 - No/low Impact Culverts for Fish Passage Webpage
(FY1999 – DW-14-94808901-0)
U.S. Fish and Wildlife Service
Fishery Resources Office
2800 Lake Shore Drive East
Ashland, WI 54806

Project Narrative:
This project aided in setting up an informational website which addressed the issue of no/low impact culverts for fish passage. The intent of this site was to provide the tools needed to plan and construct a fish passage structure that would be efficient, safe and conducive to fish passage. Highlighted section of this site include: About the Program, Cautions to Consider, Evaluation of Your Work Site, Choosing Options for Replacement Structures, Final Site Preparation/Culvert Installation, Erosion Control, Quick Reference Guide, and References and Web Links.

Project Result:
Public Stewardship

-Outreach, Information Exchange
Informational website which addressed the issue of no/low impact culverts for fish passage
Economic Impact
-Direct
$5,000 – Personnel

Project Statistics
Award Amount: $5,000
Project Timeline: October 1, 2004 – September 30, 2006
Great Lakes System: Streams, tributaries, connecting channels
Culturally, Economically, and/or Biologically significant plant, animal, or habitat: Fish
Stressors Impairing the System: Development

#54 - Northern Native Plant Propagation: Techniques and Education
(FY2002 – GL97532401-0)
Sigurd Olson Environmental Institute
1411 Ellis Avenue
Ashland, Wisconsin 54806-3999
715-682-1223

Project Narrative:
The restoration of plant diversity and recovery of late-successional forest species are needed to recapture the true north woods lost to long-term human impacts. Although native restoration efforts are common practice in many parts of the county, citizens of the northern forest region have little experience in implementing restoration efforts, on small or large scales, and few commercial nurseries carry appropriate plant materials needed to support future demand of individuals and agencies.

This project helped increase the awareness of the importance of northern native plant restoration in northern mesic forest lands. 18 summer/fall field trips were scheduled to collect seeds of native plants, which were then propagated in order to collect a bulk seed bank. A coloring book, guide to native plants, educational flyer and brochure were developed as educational resources which were distributed throughout the community and at the demonstration site that was also generated through this grant.

Project Results:
Environmental Sciences and Management
-Ecological Protection
Developed a database that includes information on propagation techniques for 180 native plant species
-Ecological Restoration
Collected, stratified, stored and propagated seeds from 51-63 native species annually for three years
Public Stewardship
-Outreach, Information Exchange
Production of "Native Plants of the North County Coloring Book" and "A Guide to Northern Native Plants"
Production of introductory fliers to highlight the use of native plants in landscaping
Developed a brochure about the native plants project which was distributed to agencies and general interested citizens
Two meetings were held to bring various agencies and groups together to discuss native plant projects that are currently in progress
-Partnership Building
Created a contact list of 41 commercial nurseries in the region and worked with five nurseries on carrying native plant species in their inventory
Economic Impact
-Direct
$15,000 – Leveraged
Employed 5 staff during the project's tenure including a forest ecologist, outreach educator, and 3 student assistants

Project Statistics:
Award Amount: $35,000
Project Timetable: October 1, 2002 – September 30, 2004
Project Location: Wisconsin
Great Lakes System: Uplands
Culturally, Economically, and/or Biologically significant plants, animals, and habitats: Mesic forest lands
Stressors Impairing the System:
Partners: Wildflower Woods, Northern Plantscapes, Great Lakes Indian Fish and Wildlife Commission, U.S. Forest Service, National Parks Service, Northland College, New York Botanical Garden, the University of Wisconsin, Madison Herbarium, Community Foundation of North Central Wisconsin, the Carolyn Foundation, Ottawa National Forest, Chequamegon/Nicolet National Forest, the Society for Ecological Restoration, Madison Arboretum, Lady Bird Johnson Wildflower Center, University of Minnesota Landscape Arboretum, Whittlesey Creek National Wildlife Refuge, Beaver Creek Reserve Nature Center, Northern Great Lakes Visitor Center, Federal Highway Administration

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#55 - Ohio Coastal Atlas (See the "Grant Servicing Intermediary" description of the cluster grant to the National Fish and Wildlife Foundation for more information.)
(FY2004 – GL96518001-0 [GL2004-8])
Ohio Department of Natural Resources
2045 Morse Road
Columbus, Ohio 43229

Project Narrative:
This project help generate the "Ohio Coastal Atlas" webpage (found at www.dnr.state.oh.us/coastal/gis/coastalatlasmaps.htm) which provides extensive information regarding the coastal lands in Ohio. Geology, sand resources, habitat, land use and protected areas, soils, groundwater, and flood hazards are some of the topics covered in detail within this product. Extensive county profiles, ports and transportation, and boating access information are also available in sections of this website.

Project Results:
Public Stewardship
-*Outreach, Information Exchange*
Website with extensive information regarding the Ohio coastal lands
Economic Impact
-Direct
(See the "Grant Servicing Intermediary" description of the cluster grant to the National Fish and Wildlife Foundation for more information.)

Project Statistics:
Award Amount: $5,000
Project Timetable: October 1, 2004 – June 30, 2005
Project Location: Ohio Coast
Great Lakes System: All systems
Culturally, Economically, and/or Biologically significant plants, animals, and habitats:
Stressors Impairing the System:
Partners: Old Women Creek NERR and State Nature Preserve, Great Lakes Historical Society, Cleveland-Cuyahoga County Port Authority, Lake Erie Coastal Ohio, Lorian Port Authority, National Oceanic and Atmospheric Administration, Ohio Biological Survey, Ohio Department of Development, Ohio Department of Transportation, Toledo-Lucas County Port Authority

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#56 - Oswego County Shoreline Restoration Incentive Program
(FY2001 - GL97577601-0)
Oswego County Department of Planning and Community Development

46 E. Bridge St.
Oswego, NY 13126

Project Narrative:

Dru Associates, Inc. was retained by the Oswego County Department of Planning and Community Development to create a quantitative method by which properties along the Oswego River in Oswego County can be evaluated to determine the potential for, and ultimately the success of, and educational initiative. The initiative aims to show riverside landowners how to increase their property values for wildlife and improve stream bank stabilization through a program that teaches and rewards landowners for undertaking actions that stabilize or restore riparian habitats that "mimic" the original native shorelines. The method developed by Dru Associates, Inc. is a quantitative model (the Oswego River Corridor Resources Assessment Model (ORCRAM)) that was designed to be used easily to evaluate a property's existing (or proposed) conditions with respect to wildlife use and stream bank stabilization. The model will also allow future evaluation of any changes that related to the educational initiative, such as restoration or newly planned development aimed at shoreline enhancement.

Project Results:

Environmental Sciences and Management
-*Inventory/assessment/classification*
A quantitative model for assessing a property's condition with respect to wildlife use and stream bank stabilization.
Public Stewardship
-*Education*
Educational seminars were held in 2003 to encourage property owners to improve their properties with respect to streambank stabilization and wildlife values.
Economic Impact
-Direct
$2,441 – Leveraged
$3,678 – Personal
$7,500 – Contractual

Project Statistics:

Award Amount: $12,000
Project Timetable: October 1, 2001 – September 30, 2003
Project Location: Oswego County
Great Lakes System: Coastal shore; Streams, tributaries, connecting channels
Culturally, Economically, and/or Biologically significant plants, animals, and habitats: Oswego River Corridor shoreline
Stressors Impairing the System: Shoreline hardening and development
Partners: Dru Associates, Inc.

#57 - Plant Conservation Research Symposium (See the "Grant Servicing Intermediary" description of the cluster grant to the National Fish and Wildlife Foundation for more information.)
(FY2005 - GL96518001 [GL2005-61])
Chicago Botanic Garden
1000 Lake Cook Road
Glencoe, Illinois 60022
847-835-5440; Fax 847-835-4484

Project Narrative:

This project helped fund the 10th Annual Janet Meakin Poor Research Symposium on October 21, 2005, which was attended by 103 plant scientists and land managers. The conference's theme was "Plant Conservation in an Era of Global Climate Change" and allowed a panel of eight scientists to present on a diverse array of topics including; "Climate change and conservation in Thoreau's Concord" and "Restoration practices in a dynamic climate context." All presentations provided insight and prompted discussion on how to best protect our vanishing flora and fauna in an uncertain climatic future.

Project Results:

Environmental Sciences and Management

-Planning, Coordination, Collaboration, Conferences

10th Annual Janet Meakin Poor Research Symposium entitled "Plant Conservation in an Era of Global Climate Change"

Economic Impact

-Direct

$ 14,091– Leveraged

$ 3,684.34– Personnel

$ 4,250– Contractual

(See the "Grant Servicing Intermediary" description of the cluster grant to the National Fish and Wildlife Foundation for more information.)

Project Statistics:

Award Amount: $3,000

Project Timetable: October 1, 2005 – October 1, 2006

Project Location: Chicago Botanic Garden

Culturally, Economically, and/or Biologically significant plants, animals, and habitats: Native plants

Stressors Impairing the System: Global climate change

#58 - Protecting and Restoring Lake Superior Through Basin-Wide Community Outreach (FY2001 - GL97558401-0)

Northland College
1411 Ellis Avenue
Ashland, Wisconsin 54806
715-682-1489

Project Narrative:

Although much has been accomplished since the inception of the Lake Superior Binational Program, including the release of LaMP 2000, there was still a general lack of public knowledge about the issues facing Lake Superior. Most basin residents, municipalities, and businesses have not been aware of the Binational Program or the LaMP.

Northland College in conjunction with the Lake Superior Forum, which has a unique structure which provides an effective conduit for public outreach to communities throughout the Lake Superior Basin, conducted prioritized basin-wide public outreach with specific emphasis on the LaMP chapters regarding: Public Outreach, Habitat Protection, and Developing Sustainability. These outreach activities included: conducting a basin-wide, three-day, conference that promoted how to protect and restore riparian areas based on specific Binational Program recommendations in LaMP 2000; updating the contact information for a directory of environmental groups in the U.S. and Canada called "Resources for Protecting and Restoring Lake Superior: A Guide for Communities;" developed and conducted a basin-wide mini-grant program that distributed $2,000 to support four small communities; activities that promoted sustainability and LaMP goals; updated and printed the Forum's main brochure, "Our Lake" and distributed it at community meetings and events; and printed and provided thousands of copies of the "Vision For Lake Superior" bookmark to community leaders, municipalities, businesses and the public.

Project Results:

Environmental Sciences and Management

-Planning, Coordination, Collaboration, Conference

Basin-wide, three-day, conference that promoted how to protect and restore riparian areas based on specific Binational Program recommendations in LaMP 2000

Public Stewardship

-Outreach, Information Exchange

Updated and printed the Forum's main brochure, "Our Lake" and distributed it at community meetings and events

Printed and provided thousands of copies of the "Vision For Lake Superior" bookmark to community leaders, municipalities, businesses and the public

Economic Impact

-Direct

$790 – Leveraged

$632 – Personnel

$3,000 – Contractual

Project Statistics:

Award Amount: $15,000

Project Timetable: January 1, 2002 – December 31, 2003

Project Location: Lake Superior Basin

Partners: Lake Superior Binational Forum

#59 - Protecting and Restoring Priority Great Lakes Ecosystems

(FY2001 – GL97568201-0)

The Nature Conservancy

8 South Michigan Ave. Suite 2301

Chicago IL, 60603

312-759-8017

Project Narrative:

This project funded six separate projects which included: Great Lakes Network; Oak Openings Handbook, Ohio; Cheboygan River Watershed, Michigan; Upper Peninsula Forest Conservation Support, Michigan; Cline Lake Fen, Indiana; and Measuring Ecosystem Health Indicators Along the Eastern Lake Ontario Shoreline, New York. The Great Lakes Network created and facilitated a freshwater conservation network of six priority landscape-scale projects that functioned as learning laboratories for conservation – Lake Superior Highlands, MN; Ontonagon/Presque Isle River Watersheds, MI/WI; Cheboygan River Watershed, MI; Shiawassee River/Huron/Clinton River Watersheds, MI; Western Lake Erie Islands and Reefs, OH; and Tug Hill Plateau, NY. This network was set up to share best practices and build capacity for integrated conservation strategies that protect freshwater systems. All of which was put into a summary report entitled "Comparing Maps of High Quality Ecosystems in the Great Lakes Region."

The second project, Oak Openings Handbook, Ohio, created and published a 64-page, full-color publication entitled, "Living in the Oak Openings Region: A Homeowner's Guide to one of the World's Last Great Places," which provides an introduction to rare Oak Openings natural communities and the species that live there, describe how these communities sustain themselves, how natural and human forces have shaped them over thousands of years, but also, "describes ways the average homeowner can use land preservation and ecological restoration to save these rare natural gems for the next generation of sand county residents."

The Cheboygan River Watershed Project, Michigan, helped organize conservation efforts and coordinate all activities within the entire 900,000 acre watershed in northern lower Michigan. This project helped generate a strategic plan to guide the efforts of all organizations and forge a partnership that would implement the strategies identified in the plan over the long-term, which included issues such as: land protection; local planning and zoning; environmentally sustainable economic development; state and federal regulations; stormwater, shoreline restoration and road stream crossing rehabilitation; and other miscellaneous issues.

The EPA funding for the Upper Peninsula Forest Conservation Support, Michigan, went to support two start-up staff of the Upper Peninsula (UP) Office of the Michigan Chapter, as they began planning, protection, and outreach in the UP. Tasks that have been accomplished under this project can be divided into 5 areas; land protection activities, state and federal partnerships, compatible economic development, forestry, and land trust development. Over 7700 acres have been protected through purchasing, transfer to the state, or conservation easements by this UP office. Also a team of Upper and Lower Peninsula staff as well as staff from the Great Lakes Program spent time identifying, inventorying, and collecting baseline data on 8 sites that are future ecotourism stops as well as areas with high biodiversity.

The primary objective of the work supported by the EPA grant project within Cline Lake Fen, Indiana, was to clarify the ecological needs and habitat use of the massasauga, and to establish how management efforts can best

be adjusted to help the massasauga, while allowing the Conservancy to pursue broader site management goals. This project resulted in a Final Report entitled, "Activity Patterns and Spatial Resource Selection of the Eastern Massasauga Rattlesnake in Northeastern Indiana," which provided detailed insight into habitat use by Massasauga at Cline Lake Fen and adjacent upland restorations, and provide a preliminary estimate of population structure. The snakes use most of the wetlands as habitat, with broad overlap in home range size. Uplands were used sporadically as hunting and basking habitat. Hibernacula are closely associated with the emerging water table adjacent to the fen. Because hibernacula are mostly unprotected, suggests that experimental hibernacula be constructed on lands owned and managed by The Nature Conservancy.

The last project supported by this grant, Measuring Ecosystem Health Indicators along the Eastern Lake Ontario Shoreline, aided in the development and implementation of a four-pronged monitoring program for the habitat, wildlife, and water quality of the eastern shore of Lake Ontario. The four elements included: Monitoring of dune restoration efforts; Monitoring of bog buckmoths, an indicator species; Water Quality at Selkirk Fen; and Monitoring of wetlands communities.

Project Results:

Environmental Sciences and Management

-Ecological Protection

The project partners within the Cheboygan River Watershed, Michigan Project, have acquired land and conservation easements on over 800 acres, including frontage on the Pigeon River and Crooked Lake

7784 acres have been protected through purchasing, transfer to the state, or conservation easements by the UP Forest Conservation Support Project

-Inventory, Assessment, Classification

The Cheboygan River Watershed, Michigan identified priority parcels for protection (i.e. acquisition and conservation easement) throughout the watershed.

Identifying, inventorying, and collecting baseline data on 8 sites that are future ecotourism stops as well as areas with high biodiversity within the Upper Peninsula, Michigan

-Scientific Study

Study entitled, "Activity Patterns and Spatial Resource Selection of the Eastern Massasauga Rattlesnake in Northeastern Indiana," which looked at the ecological needs and habitat use of the massasauga, and to establish how management efforts can best be adjusted to help the massasauga

Public Stewardship

-Outreach, Information Exchange

Freshwater conservation network which shares best practices and build capacity for integrated conservation strategies that protect freshwater systems.

Within the Cheboygan River Watershed, Michigan Project, workshops have been held for private landowners and landscape contractors to demonstrate natural shoreline landscaping, biotechnical erosion control and shoreline stabilization techniques to address adverse impacts associated with extensive lawns and shoreline hardening often associated with residential development along the shoreline of lakes and rivers

-Education

Production of a 64-page, full-color publication entitled, "Living in the Oak Openings Region: A Homeowner's Guide to one of the World's Last Great Places"

A Sustainable Business brochure has been prepared to inform local business owners about the ecological significance of the Cheboygan River Watershed and its contribution to the local economy

Economic Impact

-Direct

$13,185 – Leveraged

$61,799 – Personnel

$117,030 – Contractual

Project Statistics:

Award Amount: $250,438

Project Timetable: August 1, 2001 – August 1, 2003

Project Location: Lake Superior Highlands, MN; Ontonagon/Presque Isle River Watersheds, MI/WI; Cheboygan River Watershed, MI; Shiawassee River/Huron/Clinton River Watersheds, MI; Western Lake Erie Islands and

Reefs, OH; and Tug Hill Plateau, NY; Swanton Ohio; Cheboygan River Watershed, northern lower Michigan; Upper Peninsula, Michigan; Cline Lake Fen, Indiana, Eastern Lake Ontario Shoreline
Great Lakes System: All systems
Culturally, Economically, and/or Biologically significant plants, animals, and habitats: freshwater systems (including barrier dunes, swamps, marshes and fens), Oak Opening, Michigan monkey flower, Hungerford's crawling water beetle, northern bald community, old growth hemlock/white/red pine forest, granite bald communities, lake and river frontage, Massasauga Rattlesnake, bog buckmoths, bog turtle
Stressors Impairing the System: Development, invasive species, non-point source pollution,
Partners: U.S. Forest Service, Council of Great Lakes Governors' Water Management Working Group, U.S. Army Corps of Engineers, U.S. Fish and Wildlife Service's Great Lakes Basin Ecosystem Team, Toledo Botanical Garden, Toledo Zoo, Black Swamp Conservancy, Toledo Metroparks, Brent & Co., Homewood Press, Little Traverse Conservancy, Headwaters Land Conservancy, Tip pf the Mitt Watershed Council, Northeast Michigan Council of Governments, Michigan Department of Natural Resources, Pigeon River, Initiative, Huron Pines Resources Conservation and Development Council, Black River Restoration Project, Hiawatha National Forest, Ottawa National Forest, U.S. National Park Service, Seney National Wildlife Refuge, national Forest Legacy, Indiana-Purdue University Fort Wayne,

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#60 - Reestablishing Riparian Corridors

(FY1998 - GL985934-01-0)

Penn Soil Resource Conservation and Development Charitable Trust
Contact: Mr. Harvey Pinkerton
RD #3 Box 261
Clarion, PA 16214-8702
(814)226-6118

Project Narrative:

The direct access of cows to the streams of the Lake Erie drainage basin has provided an opportunity for direct discharge of manure into the water and soil erosion from the streambanks. These activities can cause pollution of the waterway and the destruction of the ecosystem along the stream and tributaries leading to Presque Isle Bay and Lake Erie. Moving cattle and livestock away from the streams provided opportunities to restore and protect the habitats along the riparian corridors within the Lake Erie basin. During this project nine streams and tributaries were selected for program activities that included, seeding and planting of indigenous trees and grasses, fencing, establishment of stream crossings and development of water supplies in pastures away from the streams. Project cost averaged at $687/acre (of which, $478/acre was provided by GLNPO), and 40% more acres were able to be reestablished with the available funds than the project originally proposed. Additionally, several of the landowners in the project area were part of the Environmental Quality Incentive Program (EQIP), which included a 10-year agreement to maintain the restored riparian areas.

Project Results:

Environmental Science and Management
- *Ecological protection and restoration, and planning/coordination/collaboration*
Over 70 acres of riparian areas were reestablished and protected from livestock. Several landowners were part of an agreement to maintain the restored areas. The project required coordination between numerous stakeholders.
Public Stewardship
- *Protection and restoration volunteers*
School and service organization related activities were associated with several of the project's components.
Ecosystem Theme
- *Agriculture, Non-point Source Pollution, Erosion Control*
The reestablishment of riparian corridors will lead to reduced non-point source pollution and reduced erosion resulting from agricultural and livestock activities.
Economic Impact
- *Direct*
$2,750 – Leveraged
$1,200 – Personnel

$48,250 – Contractual
- *Indirect*
The restored and protected riparian areas may prevent possible future costs that would be associated with a streambank that is consistently degraded through disturbance by livestock.

Project Statistics:
Award Amount: $50,000
Acres Impacted: 70 acres of riparian areas were reestablished and protected from livestock
Project Timetable: October 1, 1998 – September 30, 2001
Project Location: Clarion, PA
Great Lakes System: Streams, tributaries, connecting channels; Coastal shore
Stressors Impairing System: non-point source pollution from agriculture and livestock, erosion
Partners: Penn Soil RC&D, Erie Conservation District, Crawford County Conservation District, and USDA-NRCS

#61 - Restoration Across Borders: The Society for Ecological Restoration's 13th Annual International Conference in Niagara Falls, Ontario
(FY2001 - GL975546-01-0)
Society for Ecological Restoration
1955 West Grant Road #150
Tucson, AZ 85745

Project Narrative:
The Society for Ecological Restoration's 13th Annual International Conference, "Restoration Across Borders," was a truly binational initiative which renewed focus on the Great Lakes and the important restoration work taking place collaboratively and in tandem on both sides of the border. The intent of the conference, held the 4th through the 6th of October, 2001 in Niagara Falls, Ontario, was to provide support for practitioners, policy makers and researchers to improve current restoration activities and planning for future projects. Fifteen different countries were represented at the conference, with 412 people in attendance. Major themes included restoring through partnerships & community-building, restoring from human impacts, restoring ecological communities, and incorporating "new" visions.

Project Results:
Environmental Science and Management
- *Ecological restoration and Planning/coordination/collaboration*
This project required extensive planning, and provided a venue for the sharing of knowledge and the potential collaboration of ecological restoration activities.
Public Stewardship
- *Education and partnership building*
This conference fostered extensive partnerships in the field of ecological restoration.
Ecosystem Theme
The topics discussed during this conference could be applicable to many different ecosystem themes.
Economic Impact
- *Direct*
$1,053 – Leveraged
$1,053 - Personnel

Project Statistics:
Award Amount: $20,000
Project Timetable: June 1, 2001 – May 31, 2002
Project Location: Niagara Falls, Ontario
Great Lakes System: All systems
Stressors Impairing System: Virtually all known stressors
Partners: Ontario Trillium Foundation, Parks Canada, Environment Canada, Biohabitats, Inc., Ontario Ministry of Natural Resources, Ontario Power Generation, Sheraton Fallsview Hotel, North-South Environmental, Inc., Niagara

Catholic District School Board, City of St. Catharines, Niagara Community Awareness and Emergency Response Group, Stephen Popovich Associates, Inc., Niagara Parks Commission, Boojum Technologies Limited, Niagara Restoration Council, Dance Environmental, Inc., Marshall, Macklin & Monaghan, Garner Lee Limited, Niagara Peninsula Conservation Authority, Dougan & Associates, Toronto Parks & Recreation, Niagara College, University of Waterloo, Land Care Niagara, SER Ontario Chapter, and City of Toronto

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#62 - Restoration of Ashland Tern Island
(FY1999 – GL97502601-0)
Wisconsin Department of Natural Resources
P.O. Box 7921
Madison, Wisconsin 53707
608-267-2759

Project Narrative:

This project involves rebuilding the remnant of a former pier in Lake Superior's Chequamegon Bay. This artificial "island" is one of only two Common Tern colony sites on Lake Superior, including Canada. Deterioration of the "island" threatens the continued existence of the tern colony. The Common Tern is listed as endangered in Wisconsin and has been designation by the U.S. Fish and Wildlife Service as a species of management concern in the Great Lakes.

Project Results:

Environmental Sciences and Management
Ecological Restoration
Building of artificial island which is one of only two colony sites of the common tern in Lake Superior.
Economic Impact
-Direct
$3,684 – Leveraged
$2,647 – Personnel
$69,195 – Contractual

Project Statistics:

Award Amount: $70,000
Project Timetable: October 1, 1999 – September 30, 2001
Project Location: Chequamegon Bay, Lake Superior
Great Lakes System: Coastal shore
Culturally, Economically, and/or Biologically significant plants, animals, and habitats: Common Tern
Stressors Impairing the System: Habitat loss, Development

#63 - Restoring Lake Superior's Lost Coastal Forest (See the "Grant Servicing Intermediary" description of the cluster grant to the National Fish and Wildlife Foundation for more information.)
(FY2004 - GL96518001 [GL2004-88])
Sugarloaf Interpretive Center Association
1040 Minnesota Ave.
Duluth, MN 55802

Project Narrative:

As a result of this project, 300 acres of North Shore coastal forest were restored, including the planting of 2,000 native conifers, the protection of 1,500 native conifers from animal browse, and other restoration treatments including mulching and prescribed burns. Participants in the project included 10 land owners, who received Woodland Advisors Training, a professional Forest Stewardship Plan, and implementation assistance. Two of the landowners took the initiative to expand the planning component of the project to include other tracts of land they owned.

Participants at Wolf Ridge Environmental Learning Center are commercially harvesting 200 acres of their property, allowing significant re-growth of new conifer-dominated North Shore coastal forest. Approximately 4,000 visitors per year to Sugarloaf Cove now have access to new interpretive materials and four North Shore coastal forest restoration demonstration sites. The interpretive trails provide new signage regarding the restoration. All Minnesota North Shore coastal landowners – 1,500 people – received copies of the Lost Forest booklet in the mail. Other copies were distributed through soil and water conservation districts and libraries.

Project Results:

Environmental Science and Management
- *Ecological protection and restoration*

2,000 native conifers planted; 1,500 native conifers protected from animal browse; 200 acre re-growth of conifers after harvest.

Public Stewardship
- *Outreach/information exchange*

1,500 Lost Forest booklets mailed and distributed; Interpretive trail signage

Ecosystem Theme
- *Forests*

Economic Impact
- *Direct*

$9,800 - Leveraged
(See the "Grant Servicing Intermediary" description of the cluster grant to the National Fish and Wildlife Foundation for more information.)

Project Statistics:

Award Amount: $58,437
Acres Impacted: 300
Project Timetable: October 1, 2004 – September 30, 2006
Project Location: Minnesota
Great Lakes System: Uplands
Culturally, economically, and/or biologically significant plants, animals, and habitats: Coastal Forest
Stressors Impairing System: Development

#64 - River Otter as an Indicator Species

(FY2000 - GL97527501-0)
Bad River Band of Lake Superior Chippewa
One Maple Lane, P.O. Box 39
Odanah, WI 54861

Project Narrative:

This project included research and reporting on American Otter populations and contaminants affecting them in the Great Lakes basin. Extensive data mining and a literature review were conducted on the Great Lakes otter resulting in: the collection of historic population data and information about present population methods and trends, the creation of a Great Lakes shoreline population trend map, and the preparation of an indicator report for the 2002 State of the Great Lakes Ecosystem Conference (SOLEC). The data gathered assisted in setting a baseline index for American otter populations in Great Lakes shoreline areas.

These grant funds were also used to assist in on-going otter population trend work on the Wisconsin South Shore of Lake Superior. Bad River Natural Resources Department staff were also able to attend SOLEC in Hamilton, Ontario, and to present data at the Lake Superior Ecosystem Conference in Marquette, Michigan.

Project Results:

Environmental Science and Management
- *Inventory/assessment/classification*

Funds were used to assist in on-going otter population trend work, and the development of habitat suitability indices was begun.

- *Monitoring/indicators*
This project resulted in the development of the indicator report, "Population Monitoring and Contaminants Affecting the American Otter" for SOLEC.

Public Stewardship
- *Information exchange*
The results of this project were presented at one conference and made into an indicator report for another.
- *Partnership building*
The Bad River Natural Resources Department obtained data from wildlife officials in all the Great Lakes states and Ontario.

Ecosystem Theme
- *Fish and Wildlife*
This project focused on the American otter.

Economic Impact
- *Direct*
$900 – Leveraged
$900 – Personnel

Project Statistics:
Award Amount: $10,000
Project Timetable: August 1, 2000 – July 31, 2002
Project Location: Odanah, WI
Great Lakes System: Coastal shore
Culturally, economically, and/or biologically significant plants, animals, and habitats: American otter
Stressors Impairing System: Contaminants, habitat alteration, urbanization
Partners: Great Lakes states environmental and natural resources agencies, and Ontario Ministry of Natural Resources

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#65 - Salmon Trout River Restoration Project
(FY1999 – GL97571301-0)
Central Lake Superior Watershed Partnership
1030 Wright Street
Marquette, Michigan 49855
906-226-2461, Fax: 906-228-4484

Project Narrative:
The U.S. Fish and Wildlife Service has documented the Salmon Trout River as having the last, viable naturally reproducing population of Coaster Brook Trout on the South shore of Lake Superior (between Duluth, Minnesota and St. Sault Marie, Michigan – over 300 miles).

This project enabled the installation of numerous habitat protection and restoration projects throughout the watershed including; erosion control, stream crossing upgrades (i.e. bottomless arch culverts, bridges), native plant seedings and sediment traps hence reducing sedimentation by an estimated 50-100 tons annually. The Central Lake Superior Watershed Partnership is also providing ongoing stream monitoring to document improvements in aquatic habitat conditions.

Project Results:
Environmental Sciences and Management
-*Ecological Protection*
Erosion control, stream crossing upgrades (i.e. bottomless arch culverts, bridges), and sediment traps were implemented
-*Ecological Restoration*
Native plant seedings throughout the watershed
-*Scientific Study*
A geomorphological study was completed for the Salmon Trout Watershed

Public Stewardship

-Outreach, Information Exchange
Great Lakes restoration report showcasing the Salmon Trout Project
Article in *Trout Unlimited* magazine
Economic Impact
-Direct
$30,000 – Leveraged
$18,000 – Personnel
$88,200 – Contractual

Project Statistics:
Award Amount: $89,600
Project Timetable: October 1, 2001 – September 30, 2003
Project Location: Salmon Trout River, South shore of Lake Superior
Great Lakes System: Streams, tributaries, connecting channels
Culturally, Economically, and/or Biologically significant plants, animals, and habitats: Coaster Brook Trout
Stressors Impairing the System: Development
Partners: U.S. Fish and Wildlife Service, Marquette County Conservation District, Northern Michigan University Environmental Science Departments

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#66 – Setting Goals for Bald Eagles
(FY2001 – GL97568101-0)
Clemson University
300 Brackett Hall
Clemson, SC 29634-5712

Project Narrative:
The bald eagle SOLEC indicator (#8135) provides a gross examination of the chronic effects of persistent toxic substances on the ability for eagles to reproduce. This project was in response to an EPA-GLNPO question on how defensible goals for measuring success for this indicator on a lake-by-lake basis could be derived.

Extensive research of published literature formed the basis for the rationales related to bald eagle reproduction and deformities. Goals for delisting of bald eagle reproduction impairment were determined for both field observations and for levels of environmental toxicants related to No Observable Adverse Effect Concentrations. Goals for delisting of bald eagle deformity impairments were also determined for field observations. Concentrations related to developmental deformities were not established due to the low number of nestlings with observed cases. All goals were presented with corresponding references to published literature.

This project's derivation of defined and reportable goals has aided in endpoint development for the bald eagle indicator. The existence of these endpoints has enabled the measurement of bald eagles' progress toward recovery from the effects of contaminants in the Great Lakes.

Project Results:
Environmental Science and Management
- *Monitoring and indicators*
The development of reportable goals relating to bald eagle reproduction and deformities has strengthened the bald eagle indicator's ability to measure progress.
Ecosystem Theme
Fish and Wildlife, Biodiversity, and Rare or Threatened Species
In addition to being a biological indicator species of toxic effects of organochlorine compounds on piscivorous wildlife and the effects of bioaccumulation and biomagnification in the Great Lakes, bald eagles are also a federally protected and relatively rare species.
Economic Impact
- *Direct*
$710 – Leveraged
$6,898 – Personnel
- *Indirect*

The goals developed with this project may help to better direct future research and monitoring, therefore saving money since targeted research has the potential to be more economically efficient.

Project Statistics:
Award Amount: $14,207
Project Timetable: October 1, 2001 – September 30, 2003
Project Location: Clemson University
Great Lakes System: All systems
Culturally, Economically, and/or Biologically significant plants, animals, and habitats: Bald Eagles
Stressors Impairing System: Toxic pollution

#67 - Shoreline Stewardship Practices for Private Landowners
(FY2001 – GL97568801-0)
New York Sea Grant
120 Day Hall
Ithaca, New York 14853
607-255-2939
Mat36@cornell.edu

Project Narrative:

Habitat restoration and preservation along the Lake Ontario shoreline has largely been driven by public agencies on public properties. Results of a 1999 survey of Federal and State agencies in New York revealed that habitat preservation and restoration on private property is not being adequately addressed. Because private landowners own over 80% of the Lake Ontario shoreline, their stewardship of their property is extremely important to the recovery of the Lake Ontario ecosystem. To establish a stewardship ethic in private landowners, educational materials need to be targeted to their unique needs and include materials that will help maintain their shoreland, resulting in the improvement of Lake Ontario water quality and enhance wildlife habitat, property values and natural beauty.

This project involved the production of an educational CD-ROM and website aimed at increasing stewardship among private landowners along the Lake Ontario shoreline. The CD and website included information about native plantings that abate erosion and enhance wildlife use, control exotic species, non point source pollution abatement, and wetland preservation. In addition to the CD, each landowner was given a sample of native plant seeds for their own use.

Project Results:
Environmental Sciences and Management
-Ecological Restoration
Native plant seeds were distributed to private shoreline homeowners for their personal use
Public Stewardship
-Education
The production of an educational CD-ROM and website which aimed to increase stewardship among private shoreline homeowners
Economic Impact
-Direct
$2,591 – Leveraged
$7,500 – Personnel

Project Statistics:
Award Amount: $17,000
Project Timetable: October 1, 2001 – September 30, 2002
Project Location: Eastern Lake Ontario
Great Lakes System: Coastal Shore
Culturally, Economically, and/or Biologically significant plants, animals, and habitats: Coastal habitat
Stressors Impairing the System: Development, invasive species, pollution

Partners: the Nature Conservancy, The Soil and Water Conservation Districts, County Cooperative Extension office, The Ontario Dune Coalition, and NYS Department of Environmental Conservation

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#68 - Southeast Michigan Trails & Greenways Workshop
(FY2002 – GL97589001-0)
Community Foundation for Southeastern Michigan
333 West Fort Street, Suite 2010
Detroit, Michigan 48226
313-961-6675

Project Narrative:

This project helped fund the Southeast Michigan Trails & Greenways Workshop entitled "The Nuts and Bolts of Greenway Implementation." Held on April 17, 2002, this workshop brought together Southeast Michigan Great Lakes partners for the purpose of informing the public about greenways and ecological restoration projects taking place in the region. Furthermore, attendees of this workshop participated in 2 sessions which discussed topic such as: an overview of the trail planning process – the physical and social elements of successful trails; trail types; liability issues; trail maintenance and management; and funding sources.

Project Results:

Public Stewardship
-*Outreach, Information Exchange*
Morning workshop which informed the public about greenways and ecological restoration projects taking place in the region
Economic Impact
-Direct
$13,700 – Leveraged
$3,000 – Personnel
$8,850 – Contractual

Project Statistics:

Award Amount: $5,000
Project Timetable: July 12, 2002 – December 31, 2002
Project Location: Southeast Michigan
Great Lakes System: Uplands
Stressors Impairing the System: Development, fragmentation
Partners: Greenways Incorporated, DTE Energy, and National Parks Services

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#69 - Southeast Wisconsin Conference
(FY2001 – GL97553701-0)
Gathering Waters, Inc.
211 South Paterson Street #180
Madison, Wisconsin 53703
608-251-9131

Project Narrative:

On June 11, 31 invited individuals from the counties of Racine, Kenosha, and Walworth representing local governments (including a county executive, a county board supervisor, a town board chairman, and a town board member) several nonprofit land trusts, and other open space constituents met at the Wingspread Conference Center in Racine, Wisconsin. Total attendance with speakers and facilitators was approximately 45 individuals. Break out sessions were held for each county, initial steps were taken to develop plans for the implementation of the Southeast Wisconsin Regional Plan Commission (SEWRPC) Natural Areas plan for SE Wisconsin, county "conveners" were selected to coordinate follow up activities, individual work plans were developed, and planning began for follow-up meetings.

On June 12, individuals from the counties of Waukesha, Ozaukee, Milwaukee, and Washington, representing the same interest group, met at Cedar Valley Conference Center in Washington County. Total attendance was about 45. Break out sessions were held for each county, initial steps were taken to develop plans for the implementation of the SEWRPC Natural Areas plan for SE Wisconsin, county "conveners" were selected to coordinate follow up activities, individual work plans were developed, and planning began for follow up meetings.

Project Results:

Environmental Sciences and Management
-Planning, Coordination, Collaboration, Conferences
Two successful conferences were held on June 11 and June 12, 2002 which attempted to begin implementation of the Southeast Wisconsin Regional Plan Commission (SEWRPC) Natural Areas plan for SE Wisconsin
Economic Impact
-Direct
$2,500 – Leveraged
$1,250 – Personnel
$7,250 – Contractual

Project Statistics:

Award Amount: $12,050
Project Timetable: June 1, 2001 – December 31, 2002
Project Location: Wisconsin
Partners: Racine County, Kenosha County, Walworth County, Waukesha County, Ozaukee County, Milwaukee County, and Washington County

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#70 - Springfield Township Native Vegetation Enhancement Project

(FY1999 – GL00567501-0)
Springfield Township
12000 Davisburg Rd.
P.O. Box 1038
Davisburg, MI 48350
248-846-6510
nstrole@springfield-twp.us

Project Narrative:

The *Springfield Township Native Vegetation Enhancement Project* (NVEP) was initiated to address the protection of natural resource systems. This would be accomplished through the use of native plants in landscaping while also making a greater effort at preserving existing native vegetation. As such, the purpose of this project was to make it both enjoyable and as easy as possible for homeowners, businesses, developers and others to use native plants. Direct and indirect products resulting from the Springfield Township Native Vegetation Enhancement Project include the following: Interactive Native Plants CD-ROM, Native Plants Homeowner's Series, Native Plants Development Professional Series, Springfield Township Master Plan, Model Ordinance Language – Landscaping With Native Plant Species, Springfield Township Zoning Ordinance, Springfield Township Design & Construction Standards, Springfield Township Civic Center – Demonstration Areas, Outreach and Education, Awards.

Project Result:

Public Stewardship
-Outreach, Information Exchange
Interactive CD-ROM and several series of information sheets
Economic Impact
-Direct
$37,974.48 – Leveraged
$8,635.41 – Personnel
$8,889.23 – Contractual

Project Statistics

Award Amount: $25,000
Project Timeline: October 1, 1999 – September 30, 2001
Project Location: Springfield Township, Michigan
Great Lakes System: Uplands
Culturally, Economically, and/or Biologically significant plant, animal, or habitat: Native vegetation
Stressors Impairing the System: Non-native species

#71 - St. Joseph River Watershed Initiative
(FY1999 – GL005650-01-0)
St. Joseph River Watershed Initiative Partnership
2010 Inwood Drive
Fort Wayne, Indiana 46815
219-665-9141

Project Narrative:

The St. Joseph River contains the most diverse population of freshwater mussels remaining in the Great Lakes Basin, but perhaps more important it provides the drinking water for the 200,000 citizens of Fort Wayne, IN. Water sampling has documented at least 9 pesticides, high levels of *E. coli* and nitrogen in the river. These pollutants along with sedimentation have reduced water quality within the system so that only isolated pockets remain of the freshwater mussels once found throughout the system. One of the best known methods for reducing these pollutants is through buffer (filter) strips of grasses and trees and through conservation tillage.

The SJRI funded two contractors for two subwatersheds to conduct one-on-one contacts with landowners along the river and tributaries to promote installation of conservation practices, focusing on buffer (filter) strips of native grasses. Within the 3 years of this project 258 acres of Buffer (filter) strips (96.1 miles), 6,500+ acres of increased Conservation Tillage, 3.1 miles of grass waterways, 4,500 acres increased No-till, and 418 acres of CRP were implemented throughout this region.

Project Results:

Environmental Sciences and Management
-Ecological Protection
Over 11,000 acres were protected through the installation of Buffer (filter) strips, Conservation Tollage, grass waterways, No-till and CRP
Public Stewardship
-Outreach, Information Exchange
On-the-ground efforts to help landowners better understand the programs being offered and to do the implementation
Economic Impact
-Direct
$11,250 – Leveraged
$43,746.94 – Contractual

Project Statistics:

Award Amount: $49,000
Acres Impacted: 11,676+
Project Timetable: November 1, 1999 – October 30, 2002
Project Location: Diehl-Peckhart in Indiana, the East Fork of the St. Joseph River in Michigan and Bear Creek in Ohio
Great Lakes System: Uplands; Streams, tributaries, connecting channels
Culturally, Economically, and/or Biologically significant plants, animals, and habitats: St. Joseph River, fresh water mussels
Stressors Impairing the System: Pollution
Partners: The Nature Conservancy, Upper St. Joseph River Watershed Initiative, Natural Resources Conservation Service, Farm Service Agency, Maumee River basin Commission

#72 - State of the Strait Conference (See the "Grant Servicing Intermediary" description of the cluster grant to the National Fish and Wildlife Foundation for more information.)
(FY2004 - GL96518001 [GL2004-259])
The Friends of the Detroit River
3020 Oakwood
Melvindale, Michigan 48122
313-388-8892
river@detroitriver.org

Project Narrative:

The State of the Strait Conference is held every two years to bring together government managers, researchers, environmental and conservation organizations, students, and concerned citizens form Canada and the U.S. to assess ecosystem status and provide advice to improve research, monitoring, and management programs for the Detroit River and western Lake Erie. This project help fund the planning, conference execution and preliminary support on the conference proceedings for the second State of the Strait conference held in December 2004. During the conference, which was themed "Monitoring for Sound Management," there were eight presentations concerning traditional monitoring and four additional presentations regarding volunteer monitoring. Seven poster presentations were also given during the course of the conference.

Project Results:

Environmental Sciences and Management
-Planning, Coordination, Collaboration, Conference
The second State of the Strait conference held in December 2004.
Economic Impact
-Direct
$3,000 – Personnel
(See the "Grant Servicing Intermediary" description of the cluster grant to the National Fish and Wildlife Foundation for more information.)

Project Statistics:

Award Amount: $5,000
Project Timetable: October 1, 2004 – March 1, 2005
Project Location: University of Windsor (conference on the Detroit River and western Lake Erie)
Great Lakes System: Streams, tributaries, connecting channels
Partners: Detroit Water and Sewerage Department, University of Windsor, U.S. Geological Survey

#73 - STREAMS Educational Outreach Forum (See the "Grant Servicing Intermediary" description of the cluster grant to the National Fish and Wildlife Foundation for more information.)
(FY2003 - GL96518001 [GL2003-013])
Ohio Department of Natural Resources
4383 Fountain Sq.
Building B-3
Columbus, OH 43224

Project Narrative:

This project funded three conferences/workshops during 2003 and 2004, which we attended by 345 individuals. The first conference, "The STREAMS Channel Protection and Restoration Conference" was held on October 6-8, 2003 in Columbus Ohio, which featured presentations from 11 experts, a poster session (12 posters), working lunches and 6 workshops. The "How Two-Stage Ditches Can Benefit Agricultural and Urbanizing Watersheds Workshop" was held on August 26, 2004 at the Ramada Inn in Montpelier, Ohio. Three one hour presentations ("Stream Geomorphology," "Stream Ecology and Stream Health," and "Two-Stage Channels and the Importance of Floodplains") were held in the morning session, while field trips occurred during the afternoon. The final conference, "Self-Sustaining Solutions for Streams, Watersheds and Wetlands Conference" was held in St.

Paul Minnesota on September 12-14, 2004. This conference had 6 keynote addresses, 64 oral presentations, 20 posters, 11 exhibitors, and 5 workshops.

Project Results:

Environmental Sciences and Management
-Planning, Coordination, Collaboration, Conferences
Three workshops/conferences were held during 2003-2004
Economic Impact
-Direct
$2,835.46 – Personnel
(See the "Grant Servicing Intermediary" description of the cluster grant to the National Fish and Wildlife Foundation for more information.)

Project Statistics:

Award Amount: $10,815
Project Timetable: October 1, 2003 – September 30, 2005
Project Location: Ohio
Great Lakes System: Streams, tributaries, connecting channels; Coastal wetlands; Inland lakes and wetlands
Partners: The Ohio State University, The Nature Conservancy, University of Michigan, Minnesota State University, American Society of Agricultural Engineers

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#74 - Symposium on Traditional Ecological Knowledge and Ecosystem Restoration (FY2002 - DW-12-94803801-1)

U.S. Department of Agriculture – Forest Service
1601 N. Kent St. – WRWAR Staff RPC 4
Rosslyn, VA 22209

Project Narrative:

In August 2002, a symposium titled, "Traditional Ecological Knowledge (TEK) for Ecosystem Restoration" was held at the Joint meeting of the Ecological Society of America and the Society for Ecological Restoration International held in Tucson, Arizona. The symposium honored the efforts of TEK knowledge bearers, practitioners, proponents and their colleagues in their work on ecosystem restoration in Canada, Mexico and the United States. Projects, in which TEK was a critical component of the recovery strategy across a variety of ecosystems including the Great Lakes, were highlighted. Presentations addressed how TEK predicts ecosystem science, the ways in which TEK is known and communicated, the ethos of working cross-culturally, the restoration and conservation of biodiversity in traditional agro-ecosystems, and coastal and aquatic TEK restorations. The symposium was jointly funded by GLNPO, the U.S. Forest Service, and the U.S. National Park Service. In addition, funds were used to add to the knowledge base of the Indigenous Peoples Restoration Network (http://www.ser.org/iprn/default.asp) website.

Project Results:

Environmental Science and Management
- *planning/coordination/collaboration*
Symposium at the ESA/SER August 2002
Public Stewardship
- *partnership building*
Conference brought indigenous peoples from North America with traditional ecological knowledge together to share approaches and ideas.
Ecosystem Theme
- *conference*
Economic Impact
- *Direct*
$23,000 - Leveraged

Project Statistics:
Award Amount: $14,600
Project Timetable: August 1, 2002 – July 31, 2005
Project Location: Tucson, AZ (conference location)
Partners: U.S. Forest Service, National Park Service

#75 - A Test of Variability and Usefulness of SOLEC Indicators in Wetlands of Lake Huron and Michigan

(FY2000 - GL97547301-0)

Great Lakes Commission
400 Fourth Street
Ann Arbor, MI 48103
734-665-9135

Project Narrative:

This project tested and developed biotic indicators of wetland health, based on fish, marcoinvertebrates, and plants that can be employed in a monitoring program by federal, state, and local agencies to detect effects of anthropogenic disturbances on the biotic integrity of Great Lakes coastal wetlands. The metrics associated with these indicators were also evaluated based on seven criteria set forth in the original RFP from the Great Lakes Commission, which include: cost, measurability, basin-wide applicability or sample by wetland type, availability of complementary existing research or data, indicator sensitivity to wetland condition changes, ability to set endpoint or attainment levels, and statistical approach. These metrics, along with others, were incorporated into a preliminary IBI, which was further validated by the second part of this project.

Development of indicators of "ecosystem health" for the Great Lakes was identified as a major need at the State of the Lakes Ecosystem Conference in 1998, 2000, and 2002. The goal was to develop an invertebrate–based index of biotic integrity (IBI) that was robust to water level fluctuations and applied to broad classes of lacustrine wetlands across wave-exposure gradients. The objectives of this project included evaluate the performance and test the robustness of the preliminary IBI established by Burton et al. in 1999 at a range of water levels, eliminate any problems with the IBI, remove the preliminary status, test the IBI on similar wetlands of Lake Michigan, and establish stressor: ecological-response relationship. Twenty-two sites, both open- and protected-fringing lacustrine marshes of Lake Huron and Michigan were selected for study. Correspondence analysis and Mann-Whitney U tests were used to test the robustness of existing metrics and search for additional metrics. Wilcoxon Signed Rank tests were used to determine if metrics were responding to inter-annual water level fluctuation. Principle components analysis and Pearson correlations were used to establish stressor: ecological response relationships. Analysis confirmed the utility of most of the metrics suggested in the preliminary IBI, but several improvements were recommended. With improvements, the IBI was able to place all sites in comparable order that we placed them a priori on adjacent land-use/land cover, limnological parameters and observed disturbances. The improved IBI worked well from 1998 through 2001 despite the substantial decreases in the lake level over this time-period. Analyses of 2001 data collected from similar fringe wetlands along the northern shore of Lake Michigan suggested that the IBI could be used for fringing wetlands of northern Lake Michigan. There is a strong confidence that the IBI is ready for implementation as a tool for agencies to use in assessing wetland condition for Lake Huron and Michigan fringing wetlands.

Project Results:

Environmental Sciences and Management
-*Monitoring, Indicators*
Development of biotic indicators of wetland health, based on fish, marcoinvertebrates, and plants
Development of invertebrate–based index of biotic integrity (IBI) for assessing wetland condition for Lake Huron and Michigan fringing wetlands

Economic Impact
-Direct
$201,053 – Leveraged
$46,500 – Personnel

$300,000 – Contractual

Project Statistics:
Award Amount: $400,000
Project Timetable: November 1, 2000 – October 31, 2001
Project Location: 20 open lacustrine and protected embayment wetlands from the U.S. shoreline of Lake Huron and the northern shoreline of Lake Michigan
Great Lakes System: Coastal wetlands
Culturally, Economically, and/or Biologically significant plants, animals, and habitats: Coastal wetlands
Partners: Michigan Department of Environmental Quality, Michigan Great Lakes Protection Fund, Ontario Ministry of Natural Resources

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#76 - Urban Coastal Wetland Restoration Project
(FY2002 - GL98535201-0)
Erie-Western Pennsylvania Port Authority
100 State Street, Suite 205
Erie, Pennsylvania 16507
814-455-7557

Project Narrative:

P. australis is a concern for disturbed and fragile environments due to its rapid vegetative reproduction, adaptability to change environments and ability to form dense colonies crowding out native species in multiple environments.

This project looked at developing control strategies for a Phragmites infested urban wetland. The most affective means of controlling *P. australis* that was determined was to use a combination of mechanical and chemical methods. Attacking the entire colony is most important, with any form of control, so that all of the plants that are interconnected are affected by the control method. Continued efforts are necessary in all cases, with some having been continues for 5 years and still going, so long term methods need to be established with continued monitoring. Along with control efforts, reintroduction of native plants and/or cultivating the native seed bank is a necessity in all cases.

Project Results:
Environmental Sciences and Management
-*Scientific Study*
Case studies on the use of mechanical, chemical, and biological control strategies for infested urban wetland
Economic Impact
-Direct
$1,250 – Leveraged
$1,700 – Personnel
$3,000 – Contractual

Project Statistics:
Award Amount: $5,000
Project Timetable: October 1, 2002 – September 30, 2003
Project Location: East Harbor State Park in Ottawa County, Ohio and Presque Isle State Park in Erie Pennsylvania
Great Lakes System: Coastal wetlands
Culturally, Economically, and/or Biologically significant plants, animals, and habitats: Coastal wetlands
Stressors Impairing the System: Aggressive native and non-native species including *P. australis*
Partners: Ohio State University, Lake Erie Protection Fund, and NOAA Sea Grant

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#77 - Weeds Watch Out! Stop Invasive Plants (See the "Grant Servicing Intermediary" description of the cluster grant to the National Fish and Wildlife Foundation for more information.)
(FY2003 - GL96518001 [GL2003-022])

Cornell Cooperative Extension of Cayuga County
248 Grant Ave.
Auburn, NY 13021-1495

Project Narrative:

This project increased the awareness of the public to the threat of invasive aquatic plants to the waterbodies in the Oswego River Basin. Approximately 75 miles of river/lakeshore on Skaneateles, Oneida, Owasco, Cayuga, Seneca and Onondaga Lakes and the Three River System and Sterling Creek have benefited from this project, showing that a multi-partner, multi-county, multi-watershed initiative to educate residents can work to improve water quality. In addition to invasive aquatic plant control, numerous education and outreach activities have occurred through this project including: twelve training events, workshops, and demonstrations; twenty-five presentations; several publications, i.e. educational brochures, newsletters, and identification guides; nine displays; and eighteen articles or press releases, reaching a combined audience of over 22,500 (which does not include the many thousands more who were reached through press releases, newspaper articles and radio interviews).

Project Results:

Environmental Sciences and Management
-*Ecological Restoration*
Removal of invasive aquatic plants
Installation of a 12' by 12' benthic mat at the Skaneateles Lake Country Club on Skaneateles NY
Public Stewardship
-*Outreach, Information Exchange*
Twenty-five presentations; several publications, i.e. educational brochures, newsletters, and identification guides; nine displays; and eighteen articles or press releases during the duration of this project
-*Education*
64 volunteers were trained during 5 workshops on identifying invasive aquatic plants and monitoring and recording techniques
-*Volunteers*
64 volunteers were trained during 5 workshops
Economic Impact
-Direct
(See the "Grant Servicing Intermediary" description of the cluster grant to the National Fish and Wildlife Foundation for more information.)

Project Statistics:

Award Amount: $60,000
Area Impacted: 75 miles of river
Project Timetable: October 1, 2003 – September 30, 2005
Project Location: Oswego River Basin in New York
Great Lakes System: Open/nearshore waters
Culturally, Economically, and/or Biologically significant plants, animals, and habitats: Native aquatic plant species
Stressors Impairing the System: Invasive species
Partners: Central New York Water Chestnut Task Force, the Fingers Lake Institute, New York State Department of Environmental Conservation

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#78 - Wetlands Conservation in the Great Lakes Using GIS
(FY2002 - GL99534901-0)
Ducks Unlimited
331 Metty Drive, Suite 4
Ann Arbor, MI 48103
734-623-2000; Fax 734-623-2035

Project Narrative:

There were four primary phases to this project: data development, GIS analysis and modeling, web site application development, and review process. After three years of intense field work, the Great Lakes Mallard Study ended in July of 2003. Three graduate students were used to generate equations for nest success, fledgling survival, and home range. These parameters were then used to map five states for existing levels of nest success and fledgling survival. Using these parameters, a lambda value (productivity) was calculated for the entire five state region.

During the three years of research, the basin layers for the application were gathered and/or created. The administrative, transportation, and hydrology layers were gathered from large regional data sets. The land cover was put together from a variety of sources. The National Wetlands Inventory classification system was used for the wetlands layers, while SPARROW model was used for determining water quality for the project area. As the results of the Great Lakes Mallard study were completed, additional layers were created, including: nest success, fledgling survival and productivity. Finally, an optimization model was created to optimize productivity and habitat parameters on the landscape to aid in determining restoration activities.

The HEN model runs from the ArsIMS web site, which was generated for this project, and incorporates all the information to provide a tool for biologist making decisions on restoration and protection efforts. For any given location in the five states, HEN will calculate the existing landscape parameters. The application will then allow the user to modify the parameters based on what is possible on the landscape and re-run the landscape parameters to identify the results based on the expected restoration efforts.

Project Results:

Environmental Sciences and Management

-Inventory, Assessment, Classification

Great Lakes Mallard study

Generation of HEN model which enables mallard modeling, potential wetland restoration areas, predicted mallard distribution, predicted nest success, predicted fledgling survival, predicted optimum habitat, predicted mallard productivity, and breeding waterfowl conservation areas

Economic Impact

-Direct

$2,064,784 – Leveraged

$1,396,676 – Personnel

$17,400 – Contractual

One GIS technician and one GIS Intern for one year, three graduate students for three years, GIS Intern for two years, GIS analyst for four years, and a GIS manager for two years. $180,619 was spent on equipment and supplies during this project.

-Indirect

Increase in wildlife habitat, water quality and flood improvements through restoration planning, and an increase of recreational activities.

Project Statistics:

Award Amount: $136,695

Project Timetable: October 1, 2002 – September 30, 2003

Project Location: Wisconsin, Illinois, Michigan, Indiana, and Ohio

Culturally, Economically, and/or Biologically significant plants, animals, and habitats: Mallards

Partners: Herbert H. and Grace A. DOW Foundation, Indiana Department of Natural Resources, Michigan Department of Natural Resources, Ohio Department of Natural Resources, Saginaw Bay Watershed Initiative Network, The Bruning Foundation, The Christel DeHaan Family Foundation, The Nature Conservancy, U.S. Fish and Wildlife Service Great Lakes Coastal Program, U.S. Fish and Wildlife Service: Upper Mississippi River-Great Lakes Joint Venture, West Rosendale Hunt Club, Winous Point Marsh Conservancy, Wisconsin Department of Natural Resources, Chippewa Conservancy, Institute for Wetland and Waterfowl Research of Ducks Unlimited Canada, Illinois Department of Natural Resources, Kellogg Bird Sanctuary; Michigan State University, Little Folks Conservancy, Natural Resource Conservation Service, Michigan Department of Environmental Quality, Michigan Nature Association, Michigan State University Center for Remote Sensing and GIS, Ohio Division of Wildlife, Purdue University's Center for Advanced Applications in GIS, The Audubon Society, The Nature Conservancy, University of Guelph; Ontario, University of Maryland's Global Land Cover Facility, University of Montana, University of Oregon, U.S. Department of Agriculture Forest Service, and U.S. Geological Survey

#79 - Wetlands C.P.R. Toolbox Printing (See the "Grant Servicing Intermediary" description of the cluster grant to the National Fish and Wildlife Foundation for more information.)
(FY 2003 - GL96518001 [GL2003-045])
Tip of the Mitt Watershed Council
426 Bay Street
Petoskey, MI 49770

Project Narrative:

The Great Lakes Aquatic Habitat Network and Fund, a project of the Tip of the Mitt Watershed Council, developed a wetland resource toolbox to enable citizens and grassroots groups to promote wetland conservation, protection, and restoration. The toolbox is part of a larger campaign entitled, C.P.R for Wetlands: Conserve, Protect, and Restore, which includes wetland website resources, wetland training events, and small groups targeted to wetland projects. The toolbox's printed materials to support local citizen initiatives included media materials and information, wetland educational resources, Great Lakes wetland case studies, wetland protection summaries for each jurisdiction in the Great Lakes basin, sample wetland policies, draft opinion editorials and press releases, and a special wetland edition of the "Great Lakes Aquatic Habitat News."

This project allowed for the printing and distribution of these technical and educational resources to hundreds of groups representing thousands of individuals on key wetland protection issues. Groups can employ these to educate the public and motivate decision makers of the benefits of wetland habitats. In addition, this project also utilized the Great lakes Aquatic Habitat Network to generate media coverage highlighting success stories of effective wetland protection and restoration projects and campaigns throughout the Great Lakes basin.

Project Results:

Environmental Science and Management
- *Ecological protection and restoration*
This toolbox was dedicated to the subject of wetland conservation, protection, and restoration.
- *Planning/coordination/collaboration*
This was a coordinated, regional effort to focus significant attention on wetland habitat issues.
Public Stewardship
- *Outreach/information exchange and education*
The toolbox printed through this grant was full of useful information that helped raise awareness and enabled communities to practice improved stewardship of their local wetlands.
- *Partnership building*
This project gained the support and endorsement of numerous partners.
Ecosystem Theme
- *Wetlands*
Economic Impact
- *Direct*
$6,500 – Leveraged
$5,000 - Contractual
(See the "Grant Servicing Intermediary" description of the cluster grant to the National Fish and Wildlife Foundation for more information.)
- *Indirect*
This project supports the conservation of wetlands, which are an important part of the outdoor recreation industry.

Project Statistics:

Award Amount: $20,000
Project Timetable: July 2003 – June 2004
Project Location: Petoskey, MI and throughout the Great Lakes
Great Lakes System: Wetlands
Culturally, economically, and/or biologically significant plants, animals, and habitats: Wetlands are important habitats that contain many biologically significant plants and animals.
Stressors Impairing System: Development/conversion, water level fluctuations, invasive species, pesticide use, recreation activities.

Partners: Lake Michigan Federation, Save the Dunes Conservation Fund, Ohio Environmental Council, Lake Erie-Allegheny Earthforce, Great Lakes United, Environmental Association for Great Lakes Education, Wisconsin Wetlands Association, Federation of Ontario Naturalists, Michigan Department of Environmental Quality, Ducks Unlimited, and the C.S. Mott Foundation.

#80 - Wild Ones Natural Landscapers 25 Year History (See the "Grant Servicing Intermediary" description of the cluster grant to the National Fish and Wildlife Foundation for more information.)
(FY2004 - GL96518001 [GL2004-14])
Wild Ones Natural Landscapers
PO Box 1274
Appleton, WI 54912

Project Narrative:

A history book about the "Wild Ones" first 25 years' accomplishments was published and distributed throughout the United States. The book highlights the use of native plants in natural landscaping, thus providing a more sustainable method of landscaping. This method will result in a reduction of pollution caused by non-sustainable methods.

Project Results:

Public Stewardship
- *Outreach/information exchange*
Book about the history of the Wild Ones.
Ecosystem Theme
- *Native Landscaping*
Economic Impact
- *Direct*
$3,910 – Leveraged
(See the "Grant Servicing Intermediary" description of the cluster grant to the National Fish and Wildlife Foundation for more information.)

Project Statistics:

Award Amount: $5,000
Project Timetable: October 1, 2004 – December 1, 2004
Great Lakes System: Uplands
Stressors Impairing System: Non-sustainable landscaping, terrestrial invasive species

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#81 - Wisconsin's Wetlands: Biodiversity & Threats (See the "Grant Servicing Intermediary" description of the cluster grant to the National Fish and Wildlife Foundation for more information.)
(FY2005 - GL96518001 [GL2005-85])
Wisconsin Wetlands Association
222 S. Hamilton St.
Madison, Wisconsin 53703
608-250-9971; Fax 608-287-1179

Project Narrative:

This project help fund the 11th Annual Wetland Science Forum, "Wisconsin's Wetlands: Biodiversity & Threats," which was held on February 2-3, 2006 at the Monona Terrace Community and Convention Center in Madison, Wisconsin. Phase 1 of this project included; conducting all of the planning and organizing for the conference, i.e. consulting with our conference advisory panel, drafting and publicizing a call for presentations, securing commitments from keynote speakers, developing a conference website, developing a registration form and registration database system, solidifying and printing the conference program, and finalizing logistics with the conference facility. More than forty presenters shared their wetland expertise through a poster session and through topical oral sessions on wetland vertebrates, invertebrates, communities, hydrology, protection tools, invasive

species and restoration. Working groups and field trips also addressed wetland issues related to the biodiversity and threats theme. The conference attracted more than 350 wetlands enthusiasts from nine states and more that 115 unique organizations, agencies, and companies, as well as, considerable media attention. Overall, the conference was a great success and increased awareness of and knowledge about regional wetland issues amongst wetlands experts as well as the general public. Phase 2 involved conference wrap-up, follow-up and evaluation.

Project Results:

Environmental Sciences and Management
-Planning, Coordination, Collaboration, Conferences
This project help fund the 11th Annual Wetland Science Forum entitled "Wisconsin's Wetlands: Biodiversity & Threats
Economic Impact
-Direct
$ 43,525– Leveraged
$ 16,700– Personnel
(See the "Grant Servicing Intermediary" description of the cluster grant to the National Fish and Wildlife Foundation for more information.)

Project Statistics:

Award Amount: $5,000
Project Timetable: August 1, 2005 – August 1, 2006
Project Location: Madison, Wisconsin
Culturally, Economically, and/or Biologically significant plants, animals, and habitats: Wisconsin wetlands

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#82 - Wolf Lake Bi-State Meetings

(FY2000 – GL97532301-0)
Calumet Ecological Park Association
14201 South Steward
Riverdale, Illinois 60827
773-646-6373

Project Narrative:

This project conducted periodic meetings with Wolf Lake users in order to discuss the lake's overall environmental vitality. Feedback from these meetings was then used to develop an overall plan to deal with threats to the lake's resources, particularly those dealing with water quality.

Project Results:

Environmental Sciences and Management
-Planning, Coordination, Collaboration, Conferences
Periodic meetings were held to discuss the overall environmental vitality of Wolf Lake and to develop a plan to deal with the associated threats
Economic Impact
-Direct
$250 – Leveraged
$2,280 – Personnel
$800 – Contractual

Project Statistics:

Award Amount: $4,750
Project Timetable: October 1, 2000 – October 1, 2002
Project Location: Wolf Lake Indiana/Illinois
Great Lakes System: Inland lakes and wetlands
Culturally, Economically, and/or Biologically significant plants, animals, and habitats: Wolf Lake
Stressors Impairing the System: Development, Pollution, Habitat Fragmentation